

Memoirs of Ruchi Ram Sahni

Pioneer of Science Popularisation in Punjab

***Memoirs
of
Ruchi Ram Sahni***
Pioneer of Science Popularisation in Punjab

*Introduction, Explanatory
Notes, Index and overall
Edited by*

**Narender K. Sehgal
Subodh Mahanti**



VIGYAN PRASAR

Published by

Vigyan Prasar

C-24 Institutional Area

New Delhi - 110016

(Regd office: Technology Bhawan, New Delhi - 110 016)

Phones: 6965980, 6967532, 6866675

Fax : 6965986

E-mail : vigyan@hub.nic.in

vigyanp@iasdl01.vsnl.net.in

First Edition (Hardback) : 1994

Second Edition (Paperback) : 1997

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ISBN: 81-7480-016-6

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Printed in India

CONTENTS

Preface: Narender K. Sehgal	ix
Acknowledgements	xii
Editors' Note to the Second Edition	xiv
Editors' Note to the First Edition	xvii
Introduction	xix

I: BEGINNING OF AN INDIAN OFFICIAL'S TRIALS AND STRUGGLES.....	1
Denzil Ibbetson's Visit to the College	
I Joined the Meteorological Department	
At Presidency College, Calcutta	
Mahendra Lal Sircar's Institute	
H.F. Blanford and Meteorological Department	
Mr. John Elliot -- The Native Hater	
II: MY ASSOCIATION WITH THE PUNJAB EDUCATION DEPARTMENT.....	33
Preparation for My Lectures	
At the School of Art	
Difficult Period of Indo-British Social Relations	
III: MY FIRST VISIT TO EUROPE.....	57
Who is the Better Chemist?	
I was Kept in the Dark	
My Interest in Radioactivity	
At Heidelberg	

IV: THE PUNJAB SCIENCE INSTITUTE.....	90
Lantern Slides	
The Popular Lectures	
Punjabi as Vehicle of Scientific Ideas	
The End of the Institute	
V: THE PUNJAB SCIENCE INSTITUTE	
WORKSHOP108	108
Allah Bakhsh — The Head Mistri	
Lock and Safes Department	
The Lathe	
Repairs of Delicate Apparatus	
My Contact with Mr. Hira Lal of the Central Province	
Luck's Own Handsome Gift to the Workshop	
'Master' Pyare Lal — Inspector of Schools	
Industrial Conference at Poona	
My Visit to Sulphuric Acid Plants at Calcutta	
VI: MY PUBLIC ACTIVITIES139	139
Local Self-Government	
The Idol Contempt Case	
The Hindu Family Relief Fund	
The Himalayan Union Club	
Indian National Congress	
The Punjab Enquiry Committee	
On the Khilafat Issue	
My Connection with <i>Brahmo Samaj</i>	
VII: THE ETHICS AND TECHNIQUE OF	
MAINTAINING SELF-RESPECT.....199	199
<i>Tu....Tu....Tu....Kidhar Jata?</i>	

I Returned the Blow with all the Force I could
 Command
 In the Spirit of Philosophic Amusement
 In the Mail Tanga
 Remember I am a Punjabi!
 One Final Incident

VIII: THE SECRET OF MY HEALTHY LIFE.....215

The Law of Repetition
 Prevention is Better than Cure
 Avarice is the Root of All Evils

***Notes*231**

***Index*251**

***About the Editors*.....263**

Preface

“Here is something, I am sure, you would be delighted to go through.” Nandan Kudhyadi had said while handing over to me 32 photocopied (foolscape-sized) pages of a typescript of what was presumably the autobiography of Birbal Sahni’s father. Nandan, a film-maker, was at the time (September 1990) doing pre-production research for a video programme for NCSTC (the National Council for Science and Technology Communication, Government of India) on the life and work of Prof. Birbal Sahni--the founding father of Palaeobotany in India, whose birth centenary was to be celebrated the following year. We could not discuss the matter as he was in a hurry and on his way back to Bombay.

I read the title “Punjab Science Institute”, flipped through the pages and kept them in my briefcase, for possible reading on way to office, some day. Who could have known then that those pages were going to lead to the rediscovery of a really great man Ruchi Ram Sahni (RRS), about whom nobody had hitherto written anything?

Several days later, when I did start reading those pages on way to office, I found the content so absorbing that I could put away those pages only after I had finished

reading all of them! I then called Nandan in Bombay, told him how I felt about Ruchi Ram Sahni's science popularisation work (dating back to the last 15 years of the nineteenth century) and requested him to get hold of the whole autobiography of Ruchi Ram Sahni for me to read.

In the meantime I wrote a two-part article on RRS in the NCSTC Newsletter, *NCSTC Communications* on his science popularisation work in the Punjabi language and on his Punjab Science Institute workshop in which he had begun by repairing and building simple scientific instruments and laboratory apparatus. The articles were picked up by some individuals in Punjab, translated into Punjabi and circulated widely; a Hindi daily, *Janasatta*, published from Chandigarh also ran the 2-part article in its Sunday supplement.

We would perhaps never find out why some great men remain unsung forever. Even after they are discovered, their name and fame never travel far and wide. Ruchi Ram Sahni was one individual who, from all accounts of his life and work, deserved to be known as a great man worthy of being talked and written about all over the country. His tireless and dedicated efforts, in difficult and none-too-helpful times under the British raj, could have been a source of inspiration for generations of science teachers, science popularisers and votaries of self-reliance in India. Yet he remained unheard of till discovered a few years ago, purely accidentally. Since then, he has been written about in a few newspapers and magazines. A trust bearing his name has been established in

Punjab and two annual science popularisation awards have been instituted by this trust and already given away once (at the time of writing).

This book is an attempt at bringing to public view more and more information and facts of Ruchi Ram Sahni's life and scientific work--as revealed by the man himself. It provides a fairly good picture of his basic character, personality, outlook and philosophy of life and of how closely his deeds matched his words. Not only that, the present account also provides clues to researchers to look for further details, launch investigations and track down his links with other individuals--some well-known and others not so well-known.

In fact, besides making more and more people aware about Ruchi Ram Sahni, an equally important purpose of the book is to inspire and motivate other researchers to (i) help unearth more material and information about RRS from places in the country (or abroad) wherever he had been or worked; and (ii) help discover similar great men from the pre-independence era, from other parts of the country, whose scientific work may be lying hidden, buried or abandoned somewhere like Ruchi Ram Sahni's was.

We would be grateful for any information, clues, materials and/or details from our readers, concerning any aspects of the scientific work of RRS--especially, if it is not mentioned in this book.

New Delhi
November 01, 1994

Narender K. Sehgal

Acknowledgements

Working on this book on Ruchi Ram Sahni (RRS) has been a pleasure! The anticipation of a big and enthusiastic response to this book has added to this pleasure. For this we must first of all thank Shri Nandan Kudhyadi--a young Bombay film-maker--for coming up with a copy of an important section of Ruchi Ram Sahni's typed autobiography; never mind the few missing pages! The Punjab State Council of Science and Technology (Chandigarh) helped us in getting a photocopy of the full autobiography, for which we are grateful.

We received excellent co-operation and assistance from almost all descendants and relations of RRS--in particular, Professors Ashok Sahni (Chandigarh) and K.C. Sahni (Dehra Dun)--in preparing the introductory chapter of the book. A number of individuals also responded to the *Letter to the editor* by one of us (NKS) in a large number of newspapers around the country with an appeal to the readers to write back with any clues or information on Ruchi Ram Sahni's scientific work, or on any other individual who may have similarly worked in the nineteenth or the pre-independence twentieth century in another part of the country. All those who responded deserve our thanks.

We would also like to express our gratitude to Shri Man Mohan Sharma (Chandigarh) who, on his own, took the initiative to spread awareness about Ruchi Ram Sahni in Punjab by arranging to translate the 2-part original article of NKS (which first appeared in *NCSTC Communications*, New Delhi) and circulating it widely among interested agencies and individuals in Punjab. Later he founded and set up the Ruchi Ram Sahni Memorial Trust to propagate the work, the memory and the ideals of RRS in the country, especially in Punjab.

* * *

Editors' Note to the Second Edition

We are glad to note that our efforts in taking the message of Ruchi Ram's life and work far and wide have found encouraging response from many a different quarter. The first edition of the 'Memoirs of Ruchi Ram Sahni' has been extensively reviewed in newspapers and magazines in different languages. More rewarding were the informal reviews. Everyone who had had a chance to read the book was not only fascinated by the multifaceted personality of Ruchi Ram and his pioneering contribution to making science popular in the undivided Punjab of pre-independence India but also amazed as to how such a person remained in anonymity for so long.

Some people have tried to assert out to us that Ruchi Ram was not the first in popularising science in Punjab, or in Punjabi; and that individuals like Munshi Zakauallah and Master Ramchandra had made serious efforts to popularise science in Punjabi much before Ruchi Ram Sahni. We beg to disagree. We contend that there is no parallel to what Ruchi Ram did -- either in terms of his innovative ways, or in terms of the scale on which he tried to take science to the common

people. That is why we use the term 'Pioneer' in Ruchi Ram's case --and not to belittle contributions of others. In most other cases, pointed out to us, the work concerned related to science writing in Punjabi, rather than popularisation of science on any significant scale.

As a part of our efforts to spread the message of Ruchi Ram's life and work and also to identify more such individuals in other parts of the country we organised four seminars on the key theme of 'Science Popularisation Efforts in Pre-Independence India' at Chandigarh, New Delhi, Calcutta and Allahabad. The response from scientists, scholars and those engaged in popularising science was spontaneous. As a result we have already identified a number of individuals who could be candidates for inclusion in our series on "Pioneer Science Popularisers in Pre-independence India" and whose lives and works hitherto remain relatively unknown even among science popularisers, let alone the masses. The proceedings of these seminars are being brought out in suitably edited volumes. We intend to organise some more such seminars in other parts of the country.

The 'Memoirs of Ruchi Ram Sahni' has already been translated into Punjabi, Marathi and Hindi; these versions are in their final stages of production. Translations into other Indian languages are also planned.

The first edition of the book could at best be considered as a library edition. But encouraged by the

enthusiastic response and a persistent demand for the book we are happy to bring out this economy paperback edition which would hopefully be far more affordable for a common reader.

*** * ***

Editors' Note to the First Edition

After a great deal of effort a photocopy of the entire typescript of what presumably was Ruchi Ram Sahni's autobiography (with corrections made with a pen by RRS himself), was tracked down and obtained by one of us (NKS) during the early part of 1991. On going through it carefully it was discovered that there were many missing pages and portions which created distortions in the text at several places. Also, perhaps because of the missing portions, a few known facts (like, for instance, his working with Ernest Rutherford) too appeared missing. All our attempts to track down and retrieve the missing portions, which took quite a bit of time, were unsuccessful. We had no choice but to make do, as we did, with whatever we had in our possession.

In order to use the available material optimally, we had to either delete or compress some material (which was far removed from his scientific work), give headings and sub-headings for different sections, introduce new titles at places and rearrange the whole matter to give a smooth and natural flow to it. While all this was done, a very conscious attempt was made to retain his original text as intact as possible to ensure that the flavour of his

style and language, and his overall personality, did come through quite distinctly while reading the book.

The photographs and other visuals included here are not part of the original script. The former have been obtained from descendants and relations of RRS, while the latter are drawn by Shri Amitabh Pandey based on his own conceptions/visualisations arrived at by going through the text which described interesting incidents in Ruchi Ram Sahni's life. The idea is to allow the reader to pause once in a while and imagine the actual situations that RRS might have worked under.

Lastly, portraits of a number of important personalities drawn by Shri Amitabh Pandey, and referred to in the text, have also been included. This has been done on the basis of their availability, and sometimes on the strength of the references made in the text.

Introduction*

Professor Ruchi Ram Sahni (RRS) was a multifaceted personality. He was a scientist, an innovator, an enthusiastic educationist, a fierce patriot and a devoted social worker. He was a man of independent thinking and progressive ideas. He started his career as Second Assistant Reporter to the Government of India in the Meteorological Department in 1885. He worked under the direct supervision of Sir H. F. Blanford, F.R.S., one of the founders of the India Meteorological Department. In 1887, RRS joined the Government College, Lahore, as Assistant Professor of Chemistry and Physics from where he retired as senior Professor on 5 April 1918.

* In spite of being one of the pioneers who established a tradition of modern science in India, Ruchi Ram Sahni's research activities and particularly his science popularisation efforts remained mostly unknown. He has been referred to mostly in the context of his son, Birbal Sahni — the great palaeobotanist. In that sense, the National Council for Science & Technology Communication (NCSTC) can rightly claim to have rediscovered Ruchi Ram Sahni when it got hold of a copy of a typescript of his autobiography (with several missing portions). In recent times the first comprehensive article on Ruchi Ram Sahni's science popularisation work was written by Narender K. Sehgal which appeared in two parts in the NCSTC newsletter, *NCSTC Communications* (New Delhi), November 1991 and January 1992 issues.

RRS started his scientific career in the last quarter of the nineteenth century, which was a very important period in the history of Modern India. An all pervasive intellectual renaissance was in the offing. Political consciousness and spirit of nationalism had started taking roots in the country, although this period was also heyday of British imperialism.

Science in India, as we know it today, was in those days in a state of infancy. There were some signs of the modern scientific awareness getting into the Indian culture. But, by and large, Indians were not yet active participants in the practice of modern science. RRS was among the first generation of Indian scientists whose work finally led to modern scientific traditions in the country. J. C. Bose (1858-1937) joined the Presidency College at Calcutta in 1885. P. C. Ray (1861-1944) came to India from Edinburgh in 1888 and joined the Presidency College as a temporary Assistant Professor in 1889. The Indian Association for the Cultivation of Science, probably the first indigenous attempt at institutionalising scientific research, was established by Mahendra Lal Sircar in 1887. But till the end of the nineteenth century its activities were mainly confined to arranging popular lectures in Physics and Chemistry. C.V. Raman joined the Association in 1907. Asutosh Mookerjee (1864-1924), as Vice Chancellor of the Calcutta University, played a crucial role in institutionalising modern science in India*; he was studying in the

* "Origins of Modern Indian Science", Debi P. Burma and Subodh Mahanti. *Science Reporter* (New Delhi), April 1990.

Presidency College when RRS went there as a part-time M.A. student. The first session of the Indian Science Congress was held in 1914 under the Presidentship of Asutosh Mookerjee. So, when RRS started his career, there were hardly any infrastructural facilities. For Indians (or 'natives' as they used to be called by the Britishers) it was extremely difficult to get into those places.

There were at the time two layers in the Educational Service. The top layer—the Indian Educational Service (IES)—for all practical purposes, was meant for Britishers. Indeed, when RRS joined the Punjab Education Department, there were only three Indians in the whole country in the IES. In spite of such unhelpful circumstances, RRS could contribute to the development of a tradition of modern science in India. He was undoubtedly one of the pioneers. RRS was the first Indian to work on the atomic nucleus. He worked with Ernest Rutherford (1871-1937). He also had the privilege of being guided by Niels Bohr (1885-1962) who, at the time, was working with Rutherford. Before coming to Rutherford's Laboratory RRS went to Germany to work on radioactivity with Kasimir Fajans (1887-1975) but, just as he was trying to settle down to work, the First World War broke out and he had to leave Germany.

One of his major achievements was the creation of scientific awareness amongst the common people of Punjab. In those days, Punjab consisted of the present-day Punjab, Haryana and Himachal Pradesh in India and parts of Punjab in Pakistan. Alongside similar efforts in Bengal, his was the first attempt at popularising science

in Punjab. All his science popularisation activities were organised under the auspices of the Punjab Science Institute, which he co-founded with Professor J. Campbell Oman. Popular lectures on various aspects of science organised under the aegis of the Punjab Science Institute created unprecedented enthusiasm; people did not even mind paying a small fee for sending lecturers to *Muffussil* places. Probably this was the earliest instance in India of common people actually paying for listening to popular science lectures.

RRS worked hard to improve the quality of science teaching in schools and colleges. He had realised quite early that no science teaching was possible without facilities for repairs of simple scientific instruments used in schools and colleges. He hence established a workshop as part of the Punjab Science Institute for repairing and manufacturing scientific apparatus used in schools and colleges, and this he did by spending his own money. The workshop also trained young people enabling them to earn a decent livelihood. He was also very much concerned with industrial development of the country. He established a Sulphuric Acid factory near Lahore which flourished for several years. In this venture, he was assisted by P.C. Ray.

RRS actively participated in the freedom movement. During the Punjab Enquiry held by the Indian National Congress, following the Jallianwalla Bagh massacre, he had an opportunity to work with leaders like Motilal Nehru (1861-1931), C.R. Das (1870-1925), Pandit Madan Mohan Malaviya (1861-1946) and others.

RRS also had a close association with Mahadev Govind Ranade (1842-1901). On many occasions Ranade presided over popular lectures delivered by RRS.

RRS relinquished the title, conferred on him by the British Government, during the Khilafat Movement 'to please his Muslim friends'. Throughout his life he fought against Britishers' hegemony. He was a pioneer of the social reform movement as well, particularly relating to women.

Family background and early education *

RRS was born at Dehra Ismail Khan, a riverine Port on the Indus (now in Pakistan) on 5 April 1863. His father, Karam Chand Sahni, was a merchant. His mother, Gulab Devi, came from a banker's family of Pind Dadan Khan (now in Pakistan). The Sahni family, or the Sahni clan, originally consisted of soldiers identified as Senani.

RRS's primary education started at the age of 5 or 6 with a *Pandah* (a school teacher). It is interesting to note that the teacher used to be paid 4 *annas* for every multiplication table learnt by the pupil. At the age of nine he worked with a firm headed by one Seth Kalyan Dass, for a few months, before entering his father's business—mainly wholesale trade and money-lending.

* This section is partly based on the description given in 'Landmarks and Strandliness: An Autobiography' by Mulk Raj Sahni, son of Professor Ruchi Ram Sahni (unpublished). Professor Mulk Raj Sahni began his career with the Geological Survey of India and later founded the Department of Geology in the Panjab University.

He worked with his father till the age of 11, RRS started his school education at the Church Mission Branch School at Dehra Isamil Khan. But when the Principal of the School. Tikam Ram—a very competent person who taught Urdu left the school—RRS got himself transferred to the Main Church School. He again changed his school because of a similar reason. He passed the Middle School Examination in 1878 from the Dharam Prakash School (which was later renamed as City School), standing first in order of merit in the Province. During this period, there was a reversal in the fortunes of the family. His father died a broken man. After that it became impossible for the family to live at Dehra Ismail Khan where once it had held a privileged position in the society. The family decided to migrate to Bhera.* However, the indomitable spirit of RRS was not affected by this sudden set-back in the fortunes of the family. He left Dehra Ismail Khan for Adiwali (near Jhang, a town in Western Punjab, now in Pakistan). It is to be noted that he walked with a bundle of books on his back all the way from Dehra Ismail Khan to Adiwali—a distance of about 150 miles. He did not stay there for long. When the Principal of the School where he studied, Kashi Nath Chatterjee, was replaced by an incompetent man RRS moved to Lahore from where he passed the Calcutta Board Examination securing the 6th or the 7th position in the merit list. After passing the Board Examination he

* *Birbal Sahni* by Shakti M. Gupta, National Book Trust, India New Delhi (1989). Shakti M. Gupta is grand daughter of Professor Ruchi Ram Sahni. Birbal Sahni the most famous among the children of Professor Ruchi Ram Sahni, who founded the Birbal Sahni Institute of Palaeobotany at Lucknow.

entered the Government college, Lahore (a constituent college of the Punjab University), as a B.A. student. At the time of his joining the college, G.L. Leitner was the Principal. In 1881 he passed the Intermediate Examination, coming second in the list of the successful candidates. He passed the B.A. Examination in 1884 standing first in order of merit. While preparing for the B.A. Examination, RRS took active part in various debates and in these debates his chief opponent used to be his friend, Pandit Guru Dutt. (Guru Dutt, during his short life-span, became a prominent member of the *Arya Samaj* movement. In fact the rapid success of the *Arya Samaj* movement in Punjab was largely due to Pandit Guru Dutt and Lala Lajpat Rai. At one time Guru Dutt took over the editorship of the *The Arya Intelligence*, a weekly or probably a fortnightly paper owned by one, Lala Salig Ram.) Subjects of the aforementioned debates were varied, for example: “Akbar vs Aurangzeb,” “Who was Manu,” “The Electric Waves or the Hertzian Waves”, etc. During this period RRS studied philosophy seriously; in particular, he studied the works of William Hamilton (1788-1856), John Stuart Mill (1806-1873) and Jeremy Bentham (1748-1832). He also attended classes at the Art School where he met Lockwood Kipling—father of Rudyard Kipling.

Though RRS was deeply interested in Mathematics, in his early days, he took Physics and Chemistry for his M.A. degree. In those days, following the tradition of Oxford and Cambridge Universities, B.A. and M.A. instead of B.Sc. and M.Sc. degrees used to be offered even for science subjects.

While studying at the Government College, Lahore, RRS was deeply influenced by a number of his teachers. Sham-ul-Ulema Maulavi Mohammed Hussain Azad was one among the teachers at the Government College, Lahore, who had left a deep impression on Ruchi Ram's mind. Ruchi Ram considered it a privilege to get a chance to be taught by such a great teacher as Azad. For him it was a matter of pride. He wrote: "Here I will mention that, although I cannot claim to know the Urdu language well, I took the fullest advantage of my privilege of being Azad's pupil by making it a point to listen with reverential attention to every word that fell from the master's lips and marked the passionate and enthusiastic manner in which he portrayed day after day, one incident or another in Akbar's Darbar. These were wonderful word pictures that could only be drawn by a master. It will be simply impossible for me to convey to the reader even a faint idea of the thrills that we felt, the spell-bound, silent attention with which we followed the kinematographic progress of events and saw the 'nine gems' of Akbar's court as living and speaking personages, bending, salaming, moving and acting before our very eyes." The greatest contribution of Azad to the Urdu literature as perceived by Ruchi Ram was that he (Azad) gave it a powerful twist from its old cramped medieval setting, both of form and subject, to the modern freer atmosphere of natural thought and feeling.

He was also influenced by his History teacher, one Mr. Hurst, who was quite at home with the history of Ancient Rome and Greece. Ruchi Ram mentions that

Mr. Hurst was the only history teacher (of a school or college) whom he had ever come to know to draw maps and plans on the blackboard for illustrating every important point he wanted to explain.

Professor J. Campbell Oman who built up the Departments of Physics and Chemistry in that College not only influenced him deeply but also helped him in shaping his career. He was a good experimentalist and an eloquent speaker. RRS describes him in the following words: "He knew the knack of creating in the duller of his students a lively interest in science", which meant at the time only Physics and Chemistry. Biology (Botany and Zoology) was introduced long after he had left in 1896". Unlike other European professors of the time Professor Oman took keen interest in public movements as well.

Contribution to Science Teaching and Research

While he was still to complete his M.A., RRS took up appointment as Second Assistant Reporter to the Government of India in the Meteorological Department. His initial posting was at Calcutta. Initially RRS was rather reluctant to take up this assignment because he was interested in a teaching assignment where he would also be able to engage himself in research activities. But in those days it was not that easy for Indians, even for the brightest ones, to get appointments as faculty members in the universities, or in their constituent colleges, where one could think of making use of some rudimentary facilities for research. Professor Oman was

aware of the difficulties in getting suitable teaching assignments for Indians. He therefore advised RRS to join the Meteorological Department, saying that he (RRS) could always come back to a teaching assignment, if there were one. Further, RRS was told that he would be able to complete his M.A. from the Presidency College, Calcutta, by attending the required classes. Thus persuaded, RRS joined the Meteorological Department on 10 January 1885. From Calcutta he moved to Simla, the then headquarters of the India Meteorological Department, and started work under Sir H.F. Blanford, F.R.S. (brother of Sir W.T. Blanford of the Geological Survey of India). His main task in the Meteorological Department was to prepare the 'daily' and 'monthly' weather reports. In those days, for an Indian (or for a 'native') it was a very prestigious responsibility. In fact articles were written in leading newspapers, like the *Pioneer* of Allahabad, criticising his appointment on the ground that a 'native' was not fit for such a responsible assignment. He carried out his duties very creditably and to the utmost satisfaction of Sir H. F. Blanford. Once, on his own judgement, he successfully predicted an impending cyclone originating in the Bay of Bengal.

In 1887, RRS came back to the Government College, Lahore. Though he was a junior member of the faculty, RRS took active interest in upgrading the standard of teaching at the College. He tried to demonstrate as many experiments as possible to the students. At the time, there was no good library particularly for science subjects and to overcome this difficulty he had himself built a personal library. He used to spend a fixed amount

of money every month to buy books. He had the habit of preparing detailed class notes some of which were published in bookform. He was member of the University Syndicate for a long time. His activities were not confined to teaching at the University College alone. As mentioned earlier RRS established the Punjab Science Institute to institutionalise his efforts towards science popularisation. He himself gave more than 500 lectures. He could also motivate a large number of college teachers to take active part in the activities of the Institute. Subjects of his lectures varied, for example, 'Soap making', 'The water Lahoris drank before 1880', 'Pure and impure air', 'The toys and the lessons', 'Electroplating', 'Electricity in the service of man', 'Glass making', 'Punjab and its rivers', 'How does the telegraphic wire speak' and so on. The lectures were invariably accompanied by practical demonstrations. He used lantern slides extensively. He also standardised the process of making an improved version of lantern slides.* He gave lectures both in Punjabi and English (and probably also in Urdu).

To supplement the objectives of the Punjab Science Institute, a workshop was attached to it for repairing and manufacturing simple scientific instruments. A 'Lock and Safe Department' was added to the workshop to keep the technicians hired and trained in the workshop fully engaged. The dedication and the hard work of RRS, coupled with ingenuity of his Head Mistri Allah Baksh, converted the workshop into a full-fledged busi-

* "Ruchi Ram Sahni: Talking Science to the People". Narender K. Sehgal, *Science Reporter* (New Delhi). January 1993.

ness venture. The scientific apparatus produced by the workshop was of a standard equal to that of the ones produced by contemporary British firms in England. The workshop also undertook repairs of sophisticated instruments. Once a Committee, appointed by an Industrial Conference at Poona (where RRS went at the invitation of Madhavrao Namjoshi of Poona, a well-known public worker in the cause of indigenous industrial advancement in the country) to examine the exhibits put up by RRS's workshop at the Conference, refused to believe that such exhibits could be made in India and that too at Lahore. The Committee observed that the instruments were imported ones and the only thing the workshop probably did was to remove the fine varnish and replace it with crude varnish so as to give them the appearance of an Indian origin. To prove that the instruments were actually made at his workshop at Lahore, RRS gave three alternative options to the Conference: i) The Conference could depute any number of individuals to visit the Punjab Science Institute workshop at Lahore at his expense to see the apparatus in the actual process of making. ii) The Conference could place a large order of any of the items of the apparatus with the Workshop. As the prices quoted by the workshop were only half of the prices quoted by the British firms, they would be big gainers. iii) The Head Mistri could be left at any place in the country where he could be provided with the necessary facilities for the manufacture of the apparatus; he would then make any of the items exhibited by the workshop in front of their own eyes. After this there was no other option left to the organisers of the Conference except to accept the authenticity of his

(RRS's) workshop-made apparatus. The Punjab Science Institute Workshop took part in various industrial exhibitions organised under the auspices of the Indian National Congress and won many medals. Once at Calcutta when the Workshop was awarded a gold medal, one of the judges was J. C. Bose. Two persons who helped the expansion of the activities of the Workshop in significant ways were Hira Lal, Science Instructor at Hoshangabad, and Master Pyare Lal, Inspector of Schools, Jullundur Circle.

Dr. Shanti Swarup Bhatnagar (1894-1955), the founder-director of the council of Scientific and Industrial Research played a very important role in the formulation of India's science and technology policies and in the organisation of science in the 1940s,--was greatly influenced by RRS. It seems RRS took keen interest in shaping the scientific career of Bhatnagar. While recalling the influences of his teachers in him Bhatnagar writes:* "Prof. Ruchi Ram Sahni took special interest in me and was largely responsible for the award of a scholarship from the Dyal Singh College Trust for my studies abroad."

Before going to Germany RRS was involved with the formulation of certain laws or relationships between the solubilities of various compounds and their other contents—the atomic weight being one of them. In the case of lead he concluded that the variations observed in the atomic weight determination done by competent

* Private papers of Dr. S.S. Bhatnagar, National Institute of Science, Technology and Development Studies, New Delhi.

chemists could not merely be due to experimental errors but could probably be caused by the presence of varying quantities of some other compound with the lead salt. He found that this was also the case with bismuth. He wanted to pursue this line of enquiry in Germany. But after reaching there he found that Dr. Fajans had already solved one of the problems viz., the cause of variations observed during determinations of the atomic weight of lead. Fajans observed that it was Radium D, a radioactive isotope, which was responsible for the variations. When RRS reached there, Fajans was working on the problem of bismuth. RRS, after realising that Fajans had already solved one of the problems that he wanted to pursue and was close to solving the other, was a little hesitant to pursue these problems. His main concern was that he was not familiar with the techniques of radioactivity and so it might hamper Fajans' work. But Fajans was impressed by the observations of RRS and so he persuaded RRS to work with him on the same problem. As mentioned earlier RRS could not stay there for long because of the First World War. From Germany he went to England where he worked with Ernest Rutherford at the Physical Laboratory, Victoria University, Manchester. At Manchester, besides investigating the photographic action of alpha, beta, and gamma-rays, he undertook the study of alpha scattering in radioactive/cosmic ray emissions. The results of his investigations were communicated by Rutherford himself and they were published in the *Philosophical Magazine*.^{*} Unfortunately

^{*} Ruchi Ram Sahni. *Phil. Mag.* 28, 836 (1915); Ruchi Ram Sahni, *ibid* 33, 290 (1917)

for RRS the photographic plates he carried with him for further studies in India got damaged during his ship journey back home and a promising research career in this area came to an abrupt end.

Ruchi Ram was deeply interested in 'scientific practical agriculture' which appeared to him 'the need of the hour'. He studied several treatises on scientific agriculture as well as on the manufacture and use of chemical manures. He himself manufactured several maunds of bone manure (phosphate and bone meal) as well as other manures. He experimented with these manures manufactured by him and he even got some landlords to try them under controlled conditions. The results of these experiments were made public by means of pamphlets or leaflets. Coming to know of Ruchi Ram's interest in practical agriculture, Dr. J. Same, the then Director of Public Instruction, asked him officially to prepare for the Department three Readers on the subject for use in schools. Ruchi Ram did prepare three books titled *Kheti Ki Pahli Kitab*, *Kheti Ki Dushri Kitab* and *Kheti Ki Tishri Kitab*. According to Ruchi Ram the manuscripts of these books were corrected and some parts of the text rewritten by Syed Ahmad of Delhi, the great Urdu scholar and lexicographer (the author of the famous Urdu Dictionary, the *Farbang-i-Asafia*). These books remained in use in schools for many years.

His Involvement in Social Movements

RRS was a person of liberal views. In his youth he became a Brahma and later one of the leaders of the

Brahmo Samaj movement--a progressive religious and social upsurge which had taken roots in Bengal. His brief stay at Calcutta (during 1886) played an important role in shaping his world-view. As his son Mulk Raj Sahni describes: "Undoubtedly, father imbibed his progressive ideas during his sojourn at Calcutta..."* At Calcutta he met the elite among the Bengali social, literary and political figures including Rabindranath Tagore. He befriended Upendra Kishore Roy Chaudhuri (grandfather of Satyajit Ray). He attended lectures delivered by Keshab Chandra Sen. He came in contact with men like Asutosh Mookerjee, P. C. Ray and J. C. Bose who, like him, were also engaged in laying the foundations of a modern scientific tradition in India.

His religion knew no frontiers. He completely broke away from his caste. On many occasions he was castigated by the leaders of the then orthodox society, but such threats did not deter RRS from carrying on his struggle against orthodoxy. He was not a Sikh but he stood knee-deep in the sacred mud at the tank of the Golden Temple and removed basket-loads of it on his head and shoulders to assist in cleaning the accumulated silt (now known as *kar-seva*). He wrote a book on Sikh shrines.**

RRS fought valiantly for the rights of his country-

* *Landmarks and Strandlines : An Autobiography* (unpublished) by Mulk Raj Sahni.

** *Struggles for Reforms in Sikh Shrines*, Ruchi Ram Sahni. Amritsar (year of publication is not known).

men. He threw heart and soul into the struggle for independence. He entered the Punjab Legislative Council in 1923 as a member of the Swaraj Party. He was closely associated with the prominent nationalist minded Punjabi, Sardar Dyal Singh Majithia, whom he persuaded to found the *Tribune*, the Dyal Singh Public Library and the Union Academy (which later came to be known as Dyal Singh College) at Lahore.* RRS was deeply interested in the social and political upheaval in the continent. In his introduction to his book, *The Awakening of Asia*, he wrote: "The chief interest of the narrative lies in amazing social and political upheaval which was witnessed all over the old continent during the opening decade of the present century. It is my intention to follow up a small volume with another devoted exclusively to the simultaneous awakening of India."***

He lived to see India attain her Independence. He died in Bombay on June 3, 1948.

* "Ruchi Ram Sahni" by V.S. Suri and T.R. Sareen in Dictionary of National Biography, Vol. IV., S.P. Sen (ed), Institute of Historical Studies, Calcutta, 1974.

** *Awakening of Asia*, Ruchi Ram Sahni, Lahore, 1929

I

Beginning of an Indian Official's Trials and Struggles

I have no reason to think that my experiences of official life have been in any way singular. Perhaps it will be more correct to say that, on the whole, I was treated with greater consideration, and even respect, than most other Indians in my position were. I was one month short of a third of a century in Government service. I began my official career in the India Meteorological Department under Mr. H. F. Blanford¹, F.R.S, an angelic officer, on the 10th January, 1885. Towards the end of March 1887, my services were transferred to the Punjab Education Department as Assistant Professor of Science (Physics and Chemistry) in the Government College, Lahore, from where I retired as Senior Professor of Chemistry on 15th April, 1918, at the age of 55. I officiated as Director of Schools for the Multan Circle for ten months in 1908, and for the Amritsar Circle for three months in 1905. I served under eight Principals and five Directors of Public Instruction. During my over 31 years connection with the College I was brought into fairly intimate contact with more than

thirty European Professors. In my time every attempt was made to keep out Indians from the higher appointments in the Education Department, specially in the teaching line. It may be news to some that there were only three Indians in the Indian Educational Service *in the whole of India*, namely, Sir Jagadish Chandra Bose², D.Sc., F.R.S., Dr. D.N. Mullick, D.Sc., and a Christian gentleman who was Professor of English in Madras. Even Sir P. C. Ray³, D.Sc., had to content himself with remaining all his life on the lower rungs of the educational ladder.

Of these fifty, more or less, comrades-in-arms — if I may venture to call them so, I happened to have, during my long years of service, serious differences with only two, while I enjoyed the general goodwill of all the others. With a few of them my relations were particularly cordial and pleasant. Considering everything and specially, in view of the 'freedom' and independence with which I comported myself throughout my official career, I see no reason to complain of the treatment I received from most of my colleagues or bosses, while to some I am sincerely grateful for even going out of the way and putting even greater trust in me than their European colleagues who were also my seniors in service. Speaking for myself, I can say with perfect truthfulness that according to my lights and abilities, I tried to serve the Department honestly and with candour. At the same time, I was always prepared to pay — and did pay — the price demanded of me, but never consented to lower the flag of my self-respect and uprightness.

Denzil Ibbetson's Visit to the College

While I was yet in the M.A. class at the Government College, two things happened which led to the shaping of my future official career. One of them was a sudden visit to the College by Mr. Denzil Ibbetson,⁴ I.C.S., (afterwards Sir Denzil Ibbetson, Lt. Governor of the Punjab) who was then officiating as Director of Public Instruction.

At this time there was only one Indian on the permanent staff of the College, Babu Sashi Bhushan Mukherji, Assistant Professor of Mathematics. I think that, arising out of the recommendations of the Education Commission of 1882*, there was a move to increase the number of Indians in higher gazetted posts of the educational services of India. Dr. J.C. Bose, D.Sc.(Lond.), was appointed to the Presidency College a few months later and, within another year, Mr. G.N. Chatterjee, B.A. (Cantab.), was appointed to the Government College.

Mr. Ibbetson came up to my working table and saw some of the experiments with which I was occupied at the time. So far as I can remember now, I was occupied with the

* Appointed by Lord Ripon, Sir W.W. Hunter was President of the Commission and among the Indian members were Ananda Mohan Bose⁵ and Sir Syed Ahmad⁶. Mr. Bose was at first offered the Presidentship of the Commission, but he pointed out that its recommendations would carry greater weight if a suitable European gentleman was nominated to that office. Mr. Bose was a man of most retiring disposition. He had a most brilliant career in the Calcutta University Examination ending with winning the *Roy Chand Prem Chand Scholarship*. He was a Wrangler of the Cambridge University and a Bar-at-Law.

extraction of alkaloids and their tests. He examined my note-book, asked me a few questions about the experiments and saw some of the tests which he mentioned. After thus spending more than an hour with me, he put some questions to me as to what I was going to do after passing my examination. I told him I did not know, but that I was keen to follow some scientific career. When he had left, Professor J.C. Oman told me that Mr. Ibbetson was much impressed with me and that he thought that some proposal was on the official anvil to take me on the staff of the College. Professor Oman did not quite know what the exact nature of the proposal was. I am myself inclined to think, he did not feel himself free to disclose to me what schemes were being hatched in the DPI's Office, or possibly were brewing in Mr. Ibbetson's own brain.

I joined the Meteorological Department

The second proposal was also not long in coming. In the first week of 1885, Professor Oman showed me a demi-official letter, asking him to recommend to the Head of the Meteorological Department, a suitable science graduate who would care to take up a gazetted post as Assistant Meteorological Reporter to the Government of India. Professor Oman strongly advised me to try for the job, telling me that scientific appointments were not too plentiful and that I might not get a chance soon. He said that Mr. Ibbetson's eggs may all go bad and, in any case, there was nothing to prevent me from accepting the educational offer later, if it suited me, and get my services transferred to the Punjab. I gave my consent. Within a few days, I was telegraphically asked to see Mr. A.S. Hill, Professor of

Physics at Central Muir College, Allahabad. Mr. H. F. Blanford was on leave at the time and Mr. Hill was acting for him temporarily. Several candidates from other provinces had already been interviewed by M. Hill, before I appeared before him on the 10th January 1885. I cannot say that I was better qualified than the other candidates, but Mr. Hill seemed to be specially pleased with my answer to one or two questions. These questions which probably induced Mr. Hill to decide in my favour were related to the cyclones.

With the never-to-be forgotten terrible personal experiences of a whirlpool in mid-stream while crossing the Chenab in a boat some years earlier, no one could have satisfied him better than I did. He asked me to proceed to Calcutta direct and join the office there. The salary was to be determined by Mr. T.W. Holderness, Under Secretary to the Government of India, Agriculture Department, to which our office was attached. I pointed out that I would not like to cut short my studies for the M.A. degree. Anxious to tie me down at once as he was, he assured me that there would be no objection to my attending part time the Chemistry classes at the Presidency College and that he would write to Mr. (afterward Sir) Alexander Pedler⁷, F.R.S., Professor of Chemistry, to offer me all facilities for continuing my studies under him. Professor Pedler was also Meteorological Reporter for Bengal for which he was getting an additional allowance of Rs. 250 a month. At Calcutta, I found everybody in a very obliging mood. At the Government College, Lahore, I was drawing a scholarship of Rs.35 a month as *Fuller's Exhibitioner*. I was told that a recommendation would be made to the Panjab

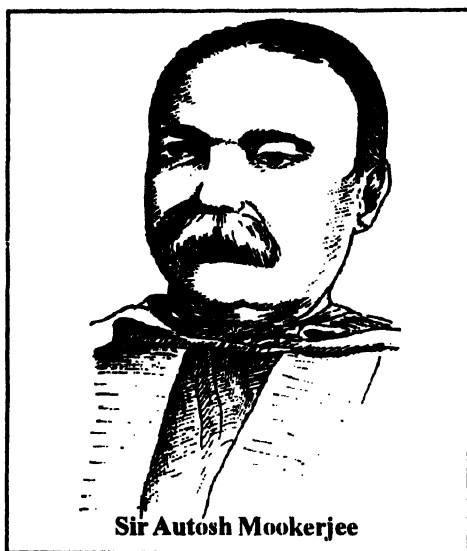
University to continue payment of the scholarship to me in addition to my salary from the Meteorological Office. Further, Mr. C.H. Tawney, Principal of the Presidency College exempted me from the payment of monthly tuition fee on the ground, as he himself pointed out to me, that I was drawing my scholarship from the Government College, Lahore, minus the tuition fee. There was no reason, therefore for charging me the tuition fee again. It probably did not occur to him that while at the Government College, Lahore, the rate of tuition fee for the M.A. class at the time was Rs. 2 only, the Presidency College charged as much as Rs. 12.

All these concessions combined with the great advantage of better education at the Presidency College finally induced me to agree to accept the post. My official designation was Second Assistant Meteorological Reporter to the Government of India. The First Assistant was a European gentleman of the name of Mr. W. H. Dallas who drew a salary of Rs. 500 rising to Rs. 1,000. I was given Rs. 100-150 but I was assured by Mr. Holderness that after I had gained some experience, my grade would be revised. Mr. Dallas was in charge of a certain specific work in connection with the log-books of ships passing through the Indian Ocean, while I was to be entrusted with the very responsible duties of the preparation and issue of the "Daily" and "Monthly" Weather Reports. I was to be permanently posted at Simla, from where the Daily Weather Report was to be issued in future. So long as I was at Calcutta, I had no fixed office hours and no well-defined duties, while I spent three to four hours every day at the Presidency College. I was supposed to be under

training and I made it a point to learn the work of everyone of the computers who were to serve under me besides my own work. Now and again I attended the Central Observatory at Alipore which was at that time at a distance of two or three miles from Calcutta with howling waste lands between, but has now been absorbed into the city. I also learnt the careful calibration of barometers and other instruments. I may mention here that my ambition was to know exactly what the men under me at the Simla Office clerks, computers and all, were doing, and to learn it so well that I could take the place of any of them without the slightest difficulty. At the same time, I studied the scientific aspects of the meteorology not only of India but also of other countries. In trying to make myself thoroughly at home with my future work, I was faithfully acting upon a valuable advice which Professor Oman had given me on my taking up service.

At Presidency College, Calcutta

At the Presidency College, among several other men who afterwards made a mark on the public life of the country, I made the acquaintance of Sir Asutosh Mookerjee⁸. He was my contemporary, being in the M.A. Class in Mathematics while I was, as I have already said, studying for my final examination in Chemistry under (Sir) Alexander Pedler, F.R.S. I lived in a *Brahmo* Hostel in Sita Ram Ghose Street (off the new Harrison Road). The Bengalis of those days most keenly felt (I am using the superlative deliberately), their lack of military training. I was frequently taken out by Asutosh and others for an evening stroll when they would press me to tell them



something about the military exploits of Guru Govind Singh,⁹ Ranjit Singh,¹⁰ Hari Singh Nalwa¹¹ and others. At the hostel several inmates were so keen to learn soldiering that they would take no refusal from me to play the part of a drill-sergeant. I told them that physically

I was but a poor specimen of a Punjabi, and that I had never ever shouldered a gun. "No, No", they would tell me, "every Punjabi is a born soldier." In particular, one of my fellow-boarders, Mr. Das, seemed to be so bewitched with the idea of learning drill that I thought he was a fit subject for being humoured. I asked him to provide himself with two long bamboo sticks which were to serve for our guns, one for himself and other for me. With the Arms Act in force, he was satisfied with the arrangement because we could not handle the genuine article. Carrying the lathis on our shoulders, I made Mr. Das march backwards and forwards in the small hostel compound. These exercises were conducted for about an hour every morning for a week, after which I passed my pupil as having mastered the art. So far as I could judge, he sincerely believed that, except for shooting a target, he had learnt a good deal of

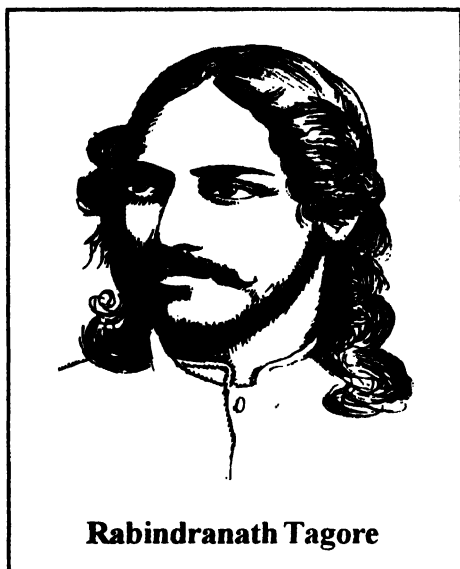
soldiering. I met Mr. Das after some years, as a Professor in the Calcutta Bethune College where he had probably less trouble with his students than a teacher in a boys' College is likely to experience. I may mention here as my definite opinion that during the past forty years a wonderful change seems to have come over the Bengali youth. While at the Presidency College, I had long discussions with my friends about the propriety or otherwise of Macaulay's wholesale charge of cowardice against the Bengalis. During the several months that I spent in Calcutta I did not even once notice two boys pounding each other in the streets – a spectacle that one might see in the course of an hour's walk through the *Bazaar* of Lahore. I myself had once to face a crowd of two hundred college students without the slightest physical molestation. Under similar circumstances in my own province, I would never have willingly run the risk of coming out of the melee bruised and bleeding. But today the case is quite different.

Apart from Professor Pedler's own lectures and my work in his Laboratories, my association with him proved, indirectly, to be of great benefit to me. He used to get samples of wines and other commercial commodities for analysis from big local firms. The analysis was seldom done by the Professor himself. As a rule, he would pass on the stuff to his Laboratory Assistant, one Mr. B., an M.A. in Chemistry and clever at lecture-table experiments. While I was at the Presidency College, Mr. B. would frequently ask me to carry out the analysis which I was only too glad to do. The arrangement suited everybody. I got

valuable experience, Mr. B. kept the wine bottles — a very small quantity of the wine being required for the actual tests — and the payment of Rs.32 for each analysis went into the pocket of Professor Pedler.

Again, Professor Pedler was analyst to the Municipality. Among his duties in this capacity was to send a daily report on the analysis of municipal water and gas supplies. As with the wines, I did the water analysis a few times and the gas analysis regularly for at least a month. For a student of Chemistry these practical exercises were of great value, as they showed how with carefully devised and properly arranged appliances, a reliable report on, say, the gas supply of a large town could be written up within a few minutes.

Among my class-fellows at the Presidency college were two *Brahmo* young men about whom I should like to say a word or two. One of them was Mr. Upendra Kishore Roy Chaudhuri (Upen Batu), tall and handsome with curled hair. He had a sweet musical voice and a charming personality. As soon as Professor Pedler had turned his back, requisition for a song (*eik gan hoche*) were sure to be showered upon "Upen". Sometimes quite for a quarter of an hour the laboratory used to be thrilled with his songs. Many years passed and I visited Calcutta again. One Sunday evening Dr. (now Sir) P.C. Ray and I happened to be sitting side by side in the *Brahmo Mandir* attending service. I asked him about Upendra Kishore Roy Chaudhuri — my old friend and class fellow. 'There is no one of that name in the *Samaj*', he said. I had not met him all those years when, however, the chorus in the balcony

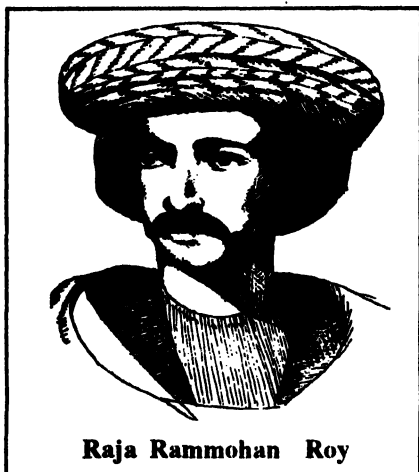


Rabindranath Tagore

overlooking the hall started the *arti* (*jaya deva, jaya deva ...*), I at once discovered him as the leader of the chorus. At the close of the service, I mentioned this to Dr. Ray. "Oh! you mean U. Ray." In this Anglicised form he was known all over India as the half-tone block maker for illustrating books and

newspapers. I met Mr. U. Ray. He invited me several times to his house, showed me his studio and explained the whole process to me including certain improvements that he had himself introduced.

The other gentleman was Dr. Gagan Chandra Home, father of Mr. Amal Home, at present Editor of the Municipal Journal of the Calcutta Corporation. He was for sometime on the staff of the *Tribune* of Lahore. Mr. Amal Home told me a few years ago that, in 1935 when he waited up on the poet Rabindranath Tagore¹² for some reminiscences of the Indian National Congress (he was bringing out the Congress Jubilee Number), the poet asked him if he was in any way related to Gagan Chandra Home. Being told that Amal was his son, the poet was pleased to remark: "I can easily recall a visit which Ruchi Ram and Gagan Chandra Home paid the Maharshi



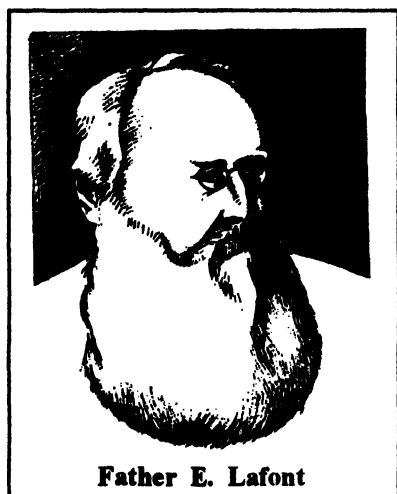
Raja Rammohan Roy

when they were both students at the Presidency College." The poet was a little older than myself. I do not remember having seen him about his father in 1885. But I distinctly remember going for a *darshan* of the Maharshi during the *Maghostav* (foundation day celebration of the *Brahmo Samaj* by Raja

Rammohan Roy¹³) when I was a student at Calcutta. Every *Brahmo*, young and old, including the leaders considered it their duty to pay their homage to Maharshi Devendranath Tagore and receive his blessings. Men, women and children flocked to his house. It was a most inspiring sight. What strikes me is that, exactly half-a-century later, Rabindranath Tagore should have remembered the insignificant fact that two *Brahmo* students of the Presidency College were among the hundreds and thousands of persons who streamed to Jorasanko for a reverential bow to the Maharshi.

Mahendra Lal Sircar's Institute

No less beneficial was my regular attendance at the lectures on popular science at Dr. Mahendra Lal Sircar's Institute.¹⁵ It was these lectures that led myself and Professor Oman to start the Punjab Science Institute at Lahore. I shall never forget the wonderful popular lectures



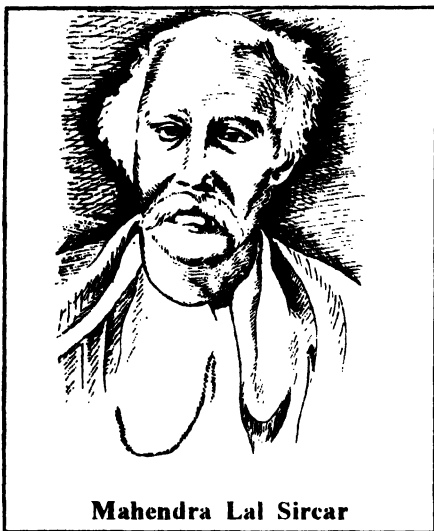
Father E. Lafont

of Father E. Lafont¹⁶ of the St. Xavier's College. There were other lecturers also who appeared on the platform now and again, but in making a difficult point crystal clear and, especially, in creating popular interest in science, no one could approach the Jesuit Professor. It was at Dr. Sircar's Institute that I first saw Dr. Jagadish

Chandra Bose. He gave a lecture on "Energy." It was illustrated by many experiments but there was nothing very fascinating about them. Dr. Bose had then just joined the Staff of the Presidency College. He was a thin man and spoke slowly with deliberation and a certain amount of hesitancy. I very well remember him as he appeared on the platform wearing a silk embroidered black cap.

One interesting public debate I must particularly mention here since it made an abiding impression upon me. I am not quite sure if it was held at Dr. Sircar's Institute or in some other public hall, but this is of little importance, what matters is the enthusiasm evinced and the pains taken by two eminent medical men of the time, Dr. Khashtgir and Dr. Simpson in carrying on a public debate upon meat and grams as articles of diet. One week, Dr. Khashtgir would speak in support of what the other called horses' food and the next week came the turn of Dr. Simpson to sponsor the case for meat upon which his

brother medico had poured vials of ridicule and contempt as an item in the dietary of modern civilised man. The discussions went on for about six weeks. Each party was very well-prepared to support his own thesis with elaborate



Mahendra Lal Sircar

charts covering the wall. The chief emphasis was, in both cases, on the scientific aspects of the horses' food and dogs' food. The public interest in the debate was so well maintained that, from beginning to the end, there was a respectable audience present. Of course, there was no reference

to "vitamins" which would figure so prominently in the dietary of men and animals alike today. My own reaction to the debate was "take both gram and meat in moderation. Neither to the exclusion of the other."

Before closing this brief account of Dr. Sircar's Institute, I will refer to a little incident which may not be without an interest. In those days, there were very few up-countrymen except as *Durwans* in business firms and on the menial establishments of Government offices. Least of all a Punjabi with a turban on his head was to be expected at a science lecture in the big hall of Dr. Sircar's Institute. One day, as I entered and espied the audience

from one side of the hall to the other for a vacant seat, I saw a sea of black bare heads before me. The bare heads also noticed me. They cheered me. On my occupying the nearest vacant seat, I took off my turban and placed it on the desk in front of me. They cheered again. I put the turban on my head again. Louder cheering than before!

Residence in a big city like Calcutta is in itself a source of continuous education. For a man who has his eyes open, a walk through its streets, is like a never ending reel of cinema film thrown on the screen. Lahore, Delhi, and Allahabad – the only large towns I had till then seen – could all be shoved away in a corner of Calcutta. But its size was not the chief thing that struck me. I was most impressed by the almost bewildering multiplicity of interests that appeared to me at every turn of the street. It should be tedious even to give a catalogue of the new impressions that assailed me during the few brief months of my stay in Calcutta.

Only one picture of this long scroll I may like to reproduce here. One day I asked a student friend where to buy a *dhoti*. He said the best place was a certain market and that he could accompany me on the following Sunday as otherwise I was sure to be cheated. I thanked him for his kind offer, but told him that I was old enough to take care of myself. Arrived at a shop in the market, I selected a Manchester made *dhoti* with a black border. "What price?" I asked. "One rupee and ten *annas*," was the prompt reply. "*Babuji*, you cannot cheat the son of a cloth merchant," I said. "What will you give then?" asked the shopkeeper. "*Ten annas*," was my offer which the man

readily accepted and I walked home with a beautifully washed “black bordered *dhoti*” under my arms. In showing the *dhoti* to my friend, he said that was the exact price that every Bengali would pay for it. This is, however, only the beginning of the story. When I went out for a stroll in the street in my new *dhoti*, I was accosted by an old Bengali Babu bending under the weight of seventy years. Coming slowly towards me supported by his staff he asked me with stentorian accents: “Why do you wear that black-bordered *dhoti*? It is a purely Bengali national dress.” He spoke in somewhat affected tone and with an unconcealed show of authority. “Have I committed a sin or a crime in wearing this *dhoti*?” I queried. “No, but this black-bordered *dhoti* is a purely Bengali National dress,” retorted the stranger. The talk went on in this strain for quite three or four minutes and as neither of us was inclined to give way to the other, I closed the discussion with the words: “I am according your black-bordered *dhoti* a higher place than you do. I am making it Indian National dress.” Only half-pleased with the compromise I offered him, the gentleman walked away sulkily. Social rebel as I have always been, for many years, the black bordered *dhoti* became my favourite article of home dress. I do not think I have ever used the *dhoti* in public except in Bengal.

H. F. Blanford and Meteorological Department

It is now time for me to take leave of Calcutta in order to proceed to Simla which was to be my permanent official headquarters. It was from there that the Daily Weather Report was to be issued. After seeing the Taj Mahal at Agra on my way back to the Punjab, and spending a

week or so at Lahore and Bhera, I reached the summer capital of the Government of India sometime in April, 1885. My boss Mr. Blanford had now returned from leave. Our office was located in the top (sixth) story of one of the two huge blocks of buildings which accommodated most of the Government of India departments. Four large sized rooms were allotted to us, one room was assigned to the office and the other three to Mr. Blanford and his two assistants. Only a small portion of the office was located at Simla. It consisted of about a dozen clerks and computers and was sufficient for bringing out the Daily and Monthly Reports. Mr. Dallas had one draftsman attached to him who occupied a corner of his room, while all the other men were meant for dealing with the Daily and Monthly weather reports for both of which I was made responsible.

Some computers had been brought over temporarily from Calcutta. My first duty, therefore, was to engage the services of a suitable Punjabi staff who could take the place of the computers brought over from Calcutta. This was necessary as Bengalis found it very inconvenient for them to remain at Simla throughout the year. It took several months to train these men before the Bengali computers could be sent back to Calcutta. For a couple of months, I had to submit the Daily Weather Report to Mr. Blanford before it was sent to the press. But one day, my boss refused to look at my Report, saying that I must now be prepared to take the whole responsibility for the Report upon myself. It was like my official coming of age. I was filled with a new sense of responsibility. There were two elements in this feeling viz., the element of

fear lest I should make some mistake in drawing wrong conclusions from the data before me, and the element of a certain amount of pride that I will now have an opportunity to show my real worth. The data upon which the Daily Report was based consisted of the record of Weather conditions as observed at about 120 stations all over India and Burma and reported to us by telegraph every morning. The Report was generally ready by 4.30 P.M. the same evening when it was sent to the Government Press at Simla and at the same time a summary of it was telegraphed to all the Daily papers in India.

Returning to my own room, the first thing I did was to tear up the unrevised report and set to work again. It took me half-an-hour to prepare a brand new draft of the Report. I checked and rechecked every statement with the mass of facts and figures prepared and tabulated by the office. I took care that any opinions expressed by me were as cautious as possible. However, it was not without some trepidation that I allowed the sheet to leave my hands. When the printed Report along with the date was received from the press the next morning, and a copy of it was placed on Mr. Blanford's table as usual, I was anxious to see what kind of reception awaited it. After half-a-hour or so, I went into Mr. Blanford's room ostensibly to show him one paper, but, in reality, to see if I had acquitted myself to his satisfaction. As no remark, favourable or otherwise, was made, I concluded that there was nothing seriously wrong with my report.

Days and even months passed. Occasionally Mr.

Blanford would discuss with me some important point arising out of my report, but more in the spirit of a loving teacher than of an irritable monitor. One morning, however, I found him in a very angry mood—an unusual thing with him. The printed report which lay on his table which he threw at me and made me say that the “barometer had fallen” throughout a particular region, while the tabulated figures told exactly the opposite story. “This is how the department comes in for severe criticism in the press,” he said. I looked at the printed statement in my report and also at the figures upon which it was supposed to have been based. It was obvious that the report had let me down very badly and there was no getting out of it. I was greatly surprised. Without saying a word in reply to the rebuke, I came back to my room and sent for the original of my report. I was much relieved to find that my own draft was all right and that the Press Department had been really at fault. As soon as this was brought to his notice, he apologised vociferously and said. “I was wondering how a careful man like you could have made a serious mistake like this.” Then he said: ‘Look here, Lala Ruchi Ram write a strong letter to the Press and call for a heavy punishment to the compositor who was responsible for the mistake.’”

Coming to my own room, I drafted the letter and fearing that any proposal of ‘heavy punishment’ from me might mean the dismissal of one or two men, I myself suggested a fine of “two rupees.” But as the letter was being taken to the Superintendent of the Press, it occurred to me that by proposing a light punishment of

Rs. 2 only, I might be running the risk of Mr. Blanford's serious displeasure. I thought of showing him the letter before it was despatched. I shall never forget the feeling of pain and pity for the erring printer with which he read the letter; "Lala Ruchi Ram," he said pathetically to me, "don't you think 2 rupees would be too much for those poor devils to pay." They get mighty little. Propose eight *annas*." I want to ensure the reader that Mr. Blanford was almost weeping as he addressed these words to me. Within a few minutes not only had his white heat anger quite cooled off, but it was turned into real sympathy with the lot of the poor men. He seemed to be much relieved next morning to learn how the mistake had taken place. In order to save time, the press men had several sets of words and phrases, like 'the barometer is rising', 'the barometer is falling', 'the temperature is high; etc., that frequently occurred in weather reports. By mistake, the compositor had picked up the wrong set of words and put it in. The mistake was not discovered by the proof reader, as he had not compared the proof with the original draft but simply saw that it made sense and was correct English.

It is a pleasure to me to record here that I began my official career under the happiest auspices and one could very much wish that all heads of departments, great and small, Indians and Europeans, were the models of gentleness, sweet reasonableness, scrupulous personal integrity and kindly consideration for all their subordinates that I found Mr. Blanford to be. During the two years that I spent in the Meteorological Department,

I learnt a great deal of the science of weather and particularly of the directions in which new work was being done or was possible. I can recall several occasions when my chief would send for me to his house so as to spend a pleasant hour with me in explaining to me some important results that had been obtained or observations made in Russia, America or somewhere else. He would show me, the working of some new instrument that had been received. On all these occasions, his particular emphasis was on the interdependence of the weather in different parts of the world and, particularly on the *manner* in which and the extent to which the weather in one country may be influenced by the conditions in the neighbouring regions. Obvious as this fact was, it made a deep impression upon me *in its widest implications*. I need not say much about the human side of my kind boss, but if all Englishmen were like Mr. Blanford, the social and political relations between the two races of which we hear so much would have been quite different from what, unfortunately, we find them today. We never exchanged a word about politics and, indeed, the one topic of our conversation and of common interest was science in general and the science of weather, in particular. He would often lend me new books or reports to read and every now and again took the opportunity to impress upon me that, as a young man, I should make it a habit to read books and thus prepare myself for my life-work. He would ask me not to do this or that work myself, but got it done by one of the clerks so as to find more time for self-study. In later life I made this valuable direction into a motto for yourself: *Do not do yourself*

what you can get others to do for you.

I will close this brief tribute to Mr. Blandford with a few words about a reminiscence which though trifling in itself is significant of the *bon-homie* of the man. Those were the days of '*Qui Hai*'—the word has passed into the English language -- but my boss never once shouted to me from his chair or even sent for me through the *chaprasi*. Whenever he wanted to see me, the old man would get up from his seat and, opening the door that separated our rooms would say gently: "Lala Ruchi Ram," upon which I would get up and follow him to his table where I always found a chair ready for me.

I have known European officials who would soon as an Indian visitor was announced, get the spare chair lying near their own removed so as to make the man stand for a few minutes before a chair was brought for him from the next room. It is a common experience of Indian visitors of respectable positions to be made to wait outside in the *verandah* for as long a time as the man would submit to. The usual answer given by the *chaprasi* on such occasion is, "the *sahib* is in the bath room." Friends have told me that while the *chaprasi* had asked them to wait because the *sahib* was in the bathroom, they could clearly see that the *sahib* himself was peeping at them through the glass window of his room to see how they behaved under the deliberate insult of long waiting outside the house. As a rule, to which I have found very few exceptions, one or two of the *recherchient*, discarded chairs were placed in the *verandah* and the *chaprasi* made it a point to ask you to sit down. I mention all this as the official background

against which Mr. Blanford's own behaviour towards me was to be judged. He never once objected to my appearing before him with shoes on, although the 'shoe question' – to use the common phrase of the newspaper editors of the time – was a constant source of trouble between European and their Indian visitors even in the office. I myself had a mild rebuke once. It so happened, that I was seeing the D.P.I. along with an Inspector of Schools who was more 'respectful' than I was in the habit of being to my *confessions*. The inspector had not only taken off his shoes before entering the room, but had also put them out of sight in a far corner of the *verandah*. Noticing this, my boss said to me: "You do not show the respect to your chief that other officers always show." As I had never done it before and had no mind in future to show 'respect' to any one at the cost of my own 'self-respect', I simply smiled and kept quiet.

The Surveyor General's office was next to the Meteorological Office. The 'high' European officials there were not even pleased to see a mere 'native' occupying a responsible post in a scientific Department of the Government of India. There were frequent occasions when a gesture was made at me or a remark thrown as I passed one of them in the *verandah*. I made it a rule to turn up my nose or mutter a word of gentle retort, but not to speak to my boss. I thought it was best not to be too sensitive, but at the same time not to take the insult – if it was meant as such lying down, as the phrase goes. I turned this far from pleasant experience to good account as it led me to make it a rule of my

life not to complain to others but to set things right myself, so far as it was possible. I may mention that, in the few cases where I departed from this practice, I failed to get the relief which I sought and which was certainly my due. While I was at the Meteorological Office, a particularly virulent attack upon me appeared in the columns of the *Pioneer* of Allahabad, then the most influential paper in India. In one of the articles, the paper referred to a certain 'daily report' of mine and complained that I had failed to give the forecast of the weather that I could and should have given on the basis of the available data. The writer added that the time had not come for a 'native' to be appointed to a responsible scientific post. He had no grievance, he pointed out, against the particular individual who had been put in charge of the onerous duties for which an European alone was the fittest person. The criticism closed with a reference to the fact that the daily weather Report was sent to foreign countries, including Russia, and that the Russians would have but small regard for the Government of India when they realised that a native had been appointed to a such a responsible post. I brought the offensive article to the notice of Mr. Blanford and asked his permission to reply to it, pointing out to him at the same time that the data before me was quite insufficient, and that his own instructions were not to venture on a forecast unless there was a reasonable possibility of its turning out to be correct. He said his own rule was not to enter into a newspaper controversy on such matters, specially as the opponent was not a scientific man. I had no option but to keep quiet. A young man is, however, very impatient to justify himself, if he can and I was no

exception to this. After a few weeks, the time came for me to write the 'monthly weather report.' I now seized the opportunity to discuss the point in some detail to which the *Pioneer* had made reference without mentioning the paper itself. In submitting this report to Mr. Blanford, I drew his kind attention to the matter and begged him to let my remarks stand with such corrections or alterations as he might consider it necessary or desirable to make. My chief heartily congratulated me for the manner in which I had set out the facts of the case, and returned the report to me for publication with a brief supporting note of his own below.

On returning to Simla after some months Mr. Blanford asked me if I knew who the writer of the article in the *Pioneer* was. I said I had no means of knowing the name of the writer. I was then informed by him that it was Mr. Hill, the very man who had selected me for my post. Mr. Hill was Professor of Physics in the Central Muir College, Allahabad, and Provincial Reporter for the N. W. Provinces. Mr. Blanford also told me that he had written a strong personal letter to him.

The most important event of my career in the Weather Office was the action that I took, entirely on my own responsibility, in issuing the immediate danger signal to all the port stations in northern Bengal (Orissa was a part of the province) to hoist the red ball. On going to office in the morning, I called for as usual such of the weather reports as had been tabulated. On examining

them, I noticed that Diamond Harbour had reported an unusually rapid fall of atmospheric pressure. There was nothing in the reports from the surrounding stations to explain or support this. I was alone at Simla at the time, both Mr. Blanford and Mr. Dallas having gone down to Calcutta. I had an urgent telegram sent to the 'Observer' at Diamond Harbour asking him to send me a fresh report of the latest readings. This report confirmed my original suspicion that a big storm was approaching. I then asked him not to leave the observatory till further orders, and keep sending me half hourly reports of the weather. A little later, I asked two or three of the other neighbouring stations also to do the same. Meanwhile, I was up fuller also making a hurried study of the reports of previous big storms. It was only when I was quite convinced in my mind that a big storm was approaching the coast that I issued the immediate danger signals.

This done, I sent a long wire to my Chief at Calcutta informing him of what I had done and reproducing the important features of the special reports that I had obtained. I afterwards learnt from the office men at Calcutta that for a few minutes after the receipt of my telegram, Mr. Blanford felt seriously perturbed and upset. He at once ran to Professor Pedler and asked him if he knew anything of a big storm in the Bay. Professor Pedlar was Provincial Reporter for Bengal. In this capacity he used to get all the reports of the Bengal stations which were nothing but duplicates of the morning reports that were sent to Simla for the 'daily weather report'. Professor Pedler knew nothing of the

storm. In fact, he had not till then even looked at the reports. As I have said before, Professor Pedler had too many wires in the fire. He was Professor of chemistry in the Presidency College, he was water and gas analyst to the Calcutta municipality, he was Meteorological Reporter to the government of Bengal, and he had a fair private practice as an analyst of wines and drugs etc., for the big importing firms at Calcutta. On the suggestion of Mr. Blanford, Professor Pedler sent out orders to the affected stations to repeat the telegrams they had been sending to me. By this time the storm had very much increased in intensity and had invaded the coast. When the report that had roused my first suspicion reached me, the storm was yet some distance from the land. Everything showed Mr. Blanford and Professor Pedler quite convincingly that I was correct in my judgement and that the orders that I had issued were quite justified. I think this was the storm that subsequently became the subject of a big paper under the title of the *False Point Cyclone*.

In the winter months of the first year of my service at Simla, I had to face a 'storm' from my own subordinates. According to orders from Calcutta a new correction had to be introduced in the telegraphically reported readings. The computers complained that this would mean an hour's additional work for each of them and that they were already over-worked. I explained to them that it would involve but a slight addition to their present duties, but they would not 'listen.' They submitted their resignations in a body. The head computer, one Allah Bakhsh of Jullundhar, and the second in command, Amar Singh, were the ring leaders. I had

myself appointed both these men a few months earlier and given the positions of importance over others. The more I pleaded with them and the others, the more obstinate they became. The situation was far from comfortable. With the snow falling every now and again, importing trained men from Calcutta was out of question and advertising for fresh men in Punjab and selecting and training a completely new set of computers was only a little less promising. I was determined to take a strong attitude and whatever happened not to yield to threats. I told them I would give them 24 hours to reconsider the matter when I would accept their resignations with a notice of a fortnight instead of a month. My real object was to practise the portion of work that had been assigned to the two ring leaders, so that they might see that I would not be frightened by the difficulties of training new men in their place. Next day I first asked the ring leader if they were prepared to withdraw their resignations. No, they were not. I then asked Allah Bakhsh to bring his papers to me so that I might see for myself how many hours work he had to do during the whole day. I made him stand by my side while I started doing his work myself. He watched me carefully for about three-quarters of an hour. Noticing that I had no difficulty whatsoever in disposing of his own work and that I was getting through it perhaps even faster than he did, he became somewhat uncomfortable. I told him from what I had myself seen of the work allotted to him that it should not take him more than three hours to finish it. I told him if they were prepared to lose a month's salary in lieu of notice of resignations, I would let him and Amar Singh

go away immediately. I would do their work myself so long as I was not able to train new men. It would be needless for me to enter here into the long sermon I gave him. He soon realised that if he persisted I was determined to get rid of both the ring leaders at once and that they would be the only sufferers. He begged to be allowed to withdraw their resignations. I said the resignation was now a part of their service record and that he could submit a fresh application to me which would, of course, be considered. This he did. I agreed to cancel his resignation. Amar Singh also submitted a similar application with the same result. Then I sent for all the others together. They too submitted a joint application. While accepting it, I passed an order that I was accepting the applications of all the computers on the distinct understanding that, if there was trouble again in the office, I would take their present conduct into consideration and turn them out of the office. I reminded them that the dismissal from Government Service at one place would debar them from all future services under the Government. I was glad that the trouble had been got over so easily. I had no mind to take a drastic action, as it would have necessitated a reference to Mr. Blanford which I was determined to avoid, if possible.

Early in the winter of my first year at Simla, a little incident occurred which, I think may not be without interest for some of my readers. Looking at the snowy range in the distance from the ridge day after day I noticed that the snow line had perceptibly come down. I determined to refer to the fact in the Weather Report

now and again for the nearer hills, giving, as far as possible, the approximate level to which the snow had descended. One day I thought of taking some observations from the top of Jako. For some reason which I do not remember now, I climbed up by a foot path on the back side of the hill. I had slung the strap of my prismatic compass with its leather case round my neck. As a part of the track was covered with leaves and had become all the more slippery by a recent fall of sleet, I attempted to go up to the steep road by walking on all fours. Unfortunately the leather case of the compass was left open by mistake. The instrument slipped out and, presently, I saw it rolling down the hill. It so happened that the lid was left behind at a short distance, while the compass itself rolled down a considerable distance into a *khud*. I picked up the lid and placed two pieces of stone, one near each of the two trees between which I had seen the instrument rolling down the hill. I was alone at the time. Returning to the office, I went back to the spot accompanied by a peon. I made the peon take a position some distance below the trees between which the instrument had passed on its downward course. I then rolled the lid (without the compass) from my original position so that it might pass between the two trees. The peon, of course, followed with his eyes, as far as he could see, the movement of the lid. This done, I asked the man to go and find both the lid and compass. As I had hoped and expected, the two parts of the instrument were found to be lying at a distance of a few yards from one another. I was glad that it was not necessary for me to report the loss of the instrument to my boss. It was not merely a

matter of about Rs.20 or Rs.25, but it would have showed carelessness on my part which a young man with ambition to please his chief would do much to avoid. As it was, I did write to Mr. Blanford about the whole incident, but in the new settings in which the recovery of the instrument was made, it acquired an interest of its own and I was the recipient of congratulations rather than condemnation.

Mr. John Elliot – the Native Hater

The time was now coming when my connection with the Meteorological Department was to cease. Sometime in the summer of 1886, I received intimation from Professor Oman that it had been decided to appoint me as an Assistant Professor in the College on Rs.200 rising to Rs.350 but that the letter of appointment would only be sent to me after the receipt of a formal application for the post. I showed the letter to Mr. Blanford. He did not like the idea of my leaving the Department when I had begun to be useful. He expressed his sympathy with me on account of my low salary but assured that he would get my grade revised. On my own part, I also expressed my sincere regret at the prospect of my parting with him but reminded him that he himself was about to retire from service and that I did not know how I may get on with his successor. As a matter of fact I knew, that Mr. John Elliot was a 'native hater.' Several Bengali friends had mentioned this to me – giving him the very epithet which I have used about him. With great effort I succeeded in getting Mr. Blanford's kind consent to apply for the Lahore post, but only on the condition that I would not leave the Department before the close of the financial year, about which time he himself was finally to

relinquish charge of his office. In due course of time I received the official letter with direction to join by the end of March next.

The reputation that Mr. Elliot had acquired in the Presidency College was not quite unjustified, a fact to which I can myself testify. During my first summer vacation at the Government college (July-September 1887) I went up to Simla. One day I called on Mr. Elliot. He did not offer me a chair and, indeed, there was no spare chair in the room. His first words were: "What can I do for you?" "Mr. Elliot, would you mind sending a brief report about my work here to the Punjab Education Department," I replied. The answer which I received was unbelievably insulting. Getting into a futile rage, he said, "I do not know if Mr. Blanford had a special berth for you." "I am glad to be out of the reach of your berth, Mr. Elliot." With these words I quitted the room, thanking my stars as I retired that I was no longer under the new Meteorological Reporter. I admit it was not prudent on my part to have gone to Mr. Elliot. But prudence comes by years and having served under a man like Mr. Blanford, despite all I had heard about Mr. Elliot, I had not the foggiest notion that Mr. Blanford's successor in office could behave no better than a cad. Mistakes are the best school and, perhaps, it was just as well that, quite early in my life, learnt the valuable lesson that there were two opposite sides of a medal, one represented by, say Mr. Blanford and other by Mr. Elliot.

II

My Association with the Punjab Education Department

In the last week of March 1887, I left Simla and on the 29th of the month I took over charge of my new post as Assistant Professor of "Science" in the Government College, Lahore. As within a few days Professor J.C. Oman himself went away on a two-year furlough, I was soon burdened with heavy responsibilities. I was put in full charge of the Chemistry Department. The number of students in the degree classes was small, not more than 30, I think, in both the third and fourth year classes which were taken together. In the M.A. class there was only one student and even he had not taken up chemistry for his B.A. examination. On the top of this, I found that my solitary student, Mr. Jagan Nath, the very man who had come to my rescue on a critical occasion, held his scholarship for one year only and that he could not afford to spend a second year at the college. He was, however, very keen to study chemistry but did not care for his M.A. degree. His object in joining the Chemistry class was simply to study the subject and not to qualify himself for a 'job.' He had made up his mind

to devote himself to an industrial pursuit. He proved to be an enthusiast and it was a real pleasure to teach him. In the earlier months he frequently attended the B.A. classes as well. Throughout the year that he spent with me at the college he helped me in preparing my own experiments both for the intermediate and the degree classes.

I may mention here that Mr. Jagan Nath used his time at the Government College to such good account that soon after leaving college he was appointed a Professor of Chemistry first at the D.A.V College, Lahore, and afterwards at the Khalsa College, Amritsar. After collecting some money by living a simple life, he retired to his native province of Rajputana. The last I heard of him was that he was living the simple life of a religious recluse devoting all his time to religious studies, preaching to the pilgrims that came to the Sabhur Lake and doing other acts of social service and making himself useful to the poor in every possible way. I was happy to learn that, for his personal wants he strongly refuses to be a burden on others, but depends upon the little income he gets from his small savings. It is a long way from a would be industrialist to a religious preacher, but in India such cases of sudden conversion are common enough to cause any surprise.

Preparation for My Lectures

It was my practice during the first five years of my career as a teacher at the college to perform all the experiments I had to show to my classes a clear week ahead and not to be satisfied with any of them till I had



Preparing for the next day's practical class

succeeded three times in succession. This means that if I failed to get the best results with an experiment, say, in the third trial, I had to start with it over again till I had obtained three repeated successes. At the same time, I strictly followed Michael Faraday's direction to a beginner to attend to the minutest details. A small instance will explain what I mean. If I wanted a match box for three separate experiments arranged for a particular day on my lecture-table, a matchbox was to be found lying by the side of the apparatus for each experiment. I had also a matchbox in my pocket, so that when I went round the laboratory tables, it was never necessary for me to ask for a match box in order to light up the gas burner to show some chemical operation. I do not think I ever failed in a class experiment during all these five years. This habit gave me considerable confidence and, in subsequent years, it was only necessary for me to arrange my experiments on the lecture-table on the previous day without making any elaborate preparation beforehand, except in the case of an experiment that required, in my judgement, some special care or caution, or that were otherwise likely to give trouble of one kind or another. I do not think that during the whole of my long career at the college I ever came home without seeing my next day's experiments arranged in the manner I have explained on my lecture table. For most experiments my Laboratory Assistant had a carefully prepared list of the requisite apparatus, requirements and accessories but I was never satisfied till I had seen everything in its place for the following day's lecture before I left college.

Here I may also mention that during the winter

session I used to attend college every day, generally from 9.30 to 11.30 in the morning for lecture work and again, after 2 P.M. for my practical classes. This was necessary to allow me an hour for a *siesta* after my mid-day meal. All my life I was so over-powered with sleep after this meal and to a lesser extent, after dinner, that I had to see my bed was ready and near at hand to receive me. I must have an hour's nap after lunch to feel refreshed and fit for work again. On important occasions when I was called upon to attend to business after lunch hour, I missed my lunch altogether and take a cup of tea instead. At night I went to bed immediately after my dinner. Indeed I am often found dozing immediately after dinner and I have to be reminded by some member of my family that I had better take to my bed.

This rather long digression was necessary to explain why I attended college twice every day, while others, including senior professors, insisted upon having continuous hours for their class work.

The first five years of my life as a teacher at the Government College were perhaps the busiest and the hardest I have ever spent. On the top of the demands on my time on account of the newly founded Punjab Science Institute Workshop and other public activities, I devoted some ten hours a day to my teaching work. I do not think I am overstating the facts when I say that I spent about eight hours a day—Sundays and other holidays not excluded—at the college preparing for my lectures. My ambition was, as I have said, to perform over and

over again every experiment that I had to show to my classes several days in advance. I paid an extra allowance to my Laboratory Assistant from my pocket to compensate him for the additional time he had to spend with me in the laboratory. During the first year I had also the advantage of my friend Mr. Jagan Nath's helpful co-operation, while he felt that he was, in this way, making up for his deficiencies in not having taken up chemistry for his degree examination, I could not but be thankful for his intelligent co-operation, cheerfully rendered, in the heavy task of preparing the experimental part of my lectures.

Apart from the rather too many experiments which I was in the habit of showing to my classes day after day, I spent a considerable time in the preparation of my lectures. Some idea of what this meant to me may be formed from the fact that for the first two or three years I wrote out my class lectures in the form of large summaries of what I was expected to say, though I never once looked at them in the presence of the class. The more important things to be explained were written out in a separate "Class Note Book." Some of these notes were sometimes dictated to the class but more frequently they were placed on the table in a small corner room for the students to read (or copy out) after lecture time. Even this was not all. Every day for each of my classes, both junior and senior, I used to write out small slip giving the important points in the lecture in the order in which they were to be explained. This slip I held in my hand while lecturing to my classes.

CLASS NOTES
ON
ELEMENTARY ORGANIC CHEMISTRY.

BY
RUCHI RAM SANHI, M. A.,
PROFESSOR, GOVERNMENT COLLEGE, LAHORE.

Lahore:
G. R. COOMAWR & SONS,
"The Lyceum", Machhi Hatti Street
AND
Government College.
1914.

Title page of Ruchi Ram's published Class Note

With elaborate notes and experiments thoroughly prepared beforehand, I was not expected to be at sea, as they say, when I was confronted with questions by my students. A new Professor, specially one who is just starting on his teaching career, is sure to be bombarded with searching questions by cleverer men in his class. Here I may also mention that before I addressed a single class at the college, I had laid down a number of rules for my own guidance. One of these rules was that, if in the course of my lecture I was not able to answer a question satisfactorily, I should never beat about the bush but at once acknowledge my ignorance and promise to look up the point and explain it the following day. For this purpose I had provided myself with a good collection of standard works in my subject. There was at the time no university library, and the college library only contained books on English language and literature, history, philosophy, fiction and a fair collection of books on general subjects, but it was woefully deficient in books on any branch of science. In addition to an initial outlay of about a thousand rupees, it was my practice — which I continued throughout my college career — to spend a minimum amount of Rs. 15 per month for the purchase of new books in Chemistry and Physics. If in a particular month it became necessary for me to purchase books of the value of say Rs. 30 or 40 or more, the next month's allowance of Rs. 15 for books must still be spent on the purchase of new books in my favourite subjects. In later years my own collection was substantially enlarged by the addition from time to time of presentation copies from the publishers. My private library was not only of

great use to me in the thorough preparation of my lectures, but more than once it also helped me in various other ways.

At the School of Art

Soon after joining the College Staff, I attended the carpentry classes at the Mayo School of Art for about six months. I found this training of great use to me in my routine work at the college. At the School of Art I was fortunate to make 'the acquaintance of Lockwood Kipling (Father of Rudyard Kipling),¹⁷ Bhai Ram Singh and Mr. Sher Muhammad. Mr. Lockwood Kipling was then the Principal of the School of Art, while the other two gentlemen were senior pupil-teachers there. The arrangements suited both Mr. Kipling and his pupils. Ram Singh and Sher Muhammad got good stipends and were thus kept on the school roll for many years before places were found for them on the staff of the school. Ram Singh afterwards rose to become Principal of the school, with (Khan Sahib) Sher Muhammad as his Vice Principal. Ram Singh was a genius in artistic designing while Sher Muhammad equally distinguished himself in decorative art. I may mention that most of the best buildings at Lahore, including the University Convocation Hall, the Museum, the Chief Court and the Aitchison College were designed by Ram Singh. I believe his best designed building – I mean from the artistic point of view – is the Khalsa College at Amritsar. Sher Muhammad did not have the same opportunities, but it is worth mentioning that he is responsible for the wall decorations in the Lahore Government House. I have

always considered it a valued privilege to have counted them among my friends. It is a thousand pities that the Punjab has not honoured their memory as they deserved. Backward in many respects, the Punjab is specially lacking in appreciating the worth of many of her gifted sons who carried on their work in a quiet and unostentatious manner. I look upon Bhai Ram Singh and Munshi Sher Muhammad among gifted sons of the province who have been quite forgotten and whose valuable services in resurrecting Indian art and craftsmanship have not received the appreciation that was due to them.

It is a pleasure to me to record that when I presented myself before Lockwood Kipling with the object of learning some carpentry, it was Bhai Ram Singh to whose care and instruction I was assigned. Naturally carpentry became a subsidiary object with me and the appreciation of art the major interest. Even as a pupil-teacher Ram Singh was delighted to show me works of art in the nearby museum and explain to me the criteria of the artistic values of paintings, sculptures and other works of art. The present Tollinton market was the Lahore museum at the time while the School of Art was housed in an old unpretentious structure on the side of which the present respectable and commodious buildings were erected soon after.

Period of Difficult Indo-British Social Relations

I had not been long at the Government College when an interesting incident took place. It was the first of its kind in my official life, and looking back upon it and

reflecting on all that it implied, I cannot say I quite regret it. From many points of view, closing quarter of the last century was a difficult period in the Indo-British social relations. For the Britishers it was the time when the Empire was rapidly expanding, and more important still, both the meaning and the value of it were changing.* At the same time, India was now experiencing the effects of a social and intellectual awakening the like of which she had not known before. The whole intelligentsia of the country, while reluctant to leave the ancestral moorings, was seized with a passion for the culture and civilisation of the West. True, they severely criticised some of the official measures, but in the same breath they gave expression to their sincere love and admiration for the European arts and sciences, the liberalising English literature and, above all, the gift of social and political freedom promised by the 'Proclamation of the Queen – the Magna Charta of Indian liberties.'**

In 1894 or 1895, I had a strange experience which gave me a shock. It was the first experience of the kind for me, though, unfortunately not the last. One morning a

* The author refers here to his book *A Century of Cultural Ferment* (Chapter: Growth of Nationalism in India) but we are yet to come across the book either in published or unpublished form. -Eds.

** I do not remember a single speech of Surendranath Banerjee in the closing two decades of the last century that did not end with the peroration: "I take my stand upon the Proclamation of the Queen – the Magna Charta of Indian liberties." I really find it difficult to describe the tremendous enthusiasm with which this peroration was received by the audiences.

student from a sister college came to my house and asked me a question in Chemistry (practical paper) which he expected to be set in the Intermediate examination the next day. He was himself appearing at the examination. Mr. A., as I would call him for the sake of convenience was related to some friend of mine and he used to see me now and again. I considered the question a most unlikely one to be put to an intermediate candidate and told him so. But Mr. A. would not listen to me. As he insisted upon having an answer, I explained the question to him with the help of a pencil diagram. What was my surprise to discover the next day that what I had called an unlikely question had actually been asked! I could not explain it in one way or the other. It will be unnecessary for me to go into the background of the incident here. It will be enough for my present purpose to mention that, on the recommendation of the Public Service Commission presided over by Sir Charles Aitchison, it was decided in 1886 to divide the higher education services into two distinct classes called the Indian and the Provincial Services. Not only were the salaries attached to the posts in two classes substantially different, but there were, in addition, certain undesirable discrimination which gave rise to a bitter controversy in the Press. One day Mr. T.O. Lewis, our Principal, sent for all the four Indian Assistant Professors — L. Sagar Chand, Babu Shashi Bhushan Mukherji, G.N. Chatterjee and myself. As soon as we were seated in the Principal's room, Mr. Lewis informed us that according the instructions he had received from the Director of Public Instruction, in future full Professors would be

required to teach three hours a day (The present practice of lecturing for 3 or 4 periods of 40 to 50 minutes each day during summer came into vogue much later), while the Assistant Professors would be expected to lecture four hours a day. Moreover, while the Professors would teach one subject only, the Assistant Professors may be asked by the Principal to take up two or more subjects, if necessary. To my enquiry as to why these distinctions were to be made between senior and junior Professors, Mr. Lewis informed us that the Assistant Professors were young men and had not yet specialised in any particular subject while the Professors were expected to be specialised and were generally older men. "Then it would mean Sir, that a Junior Professor would never be a full Professor as he would not be able to specialise in any one subject," I submitted. This was too much for Mr. Lewis. In an angry mood, he asked me to repeat my words, as it was necessary, he said, to report them to the Director of Public Instruction. As he said these threatening words, he took up his pen so as to take down my words and report them verbatim to the Director of Public Instruction. Before I had time to open my mouth and explain myself, Lala (afterwards Rai Bahadur) Sagar Chand came to my rescue. "These may be taken as my words also," he said, in a strong firm accent. "And mine too," added Babu Shashi Bhusan Mukherji and Mr. G.N. Chatterjee, almost in the same breath. I shall never forget what the effect of the firm stand we all took in the matter was upon Mr. Lewis. I am not exaggerating in the slightest degree when I say that the pen actually dropped involuntarily from his hand.

"Very well, you may go," were his final words to us. We never heard any more about the strange proposal which would have for ever disqualified us for holding, even temporarily, the post of a senior Professor of any subject in the college.

Of course, there were other ways of keeping the Indian members of the newly created Provincial Educational Service in their places and not aspiring for a position in the Indian Educational Services (I.E.S.), a strange name for a service from which Indians were, to all intents and purposes, excluded. It will be enough to mention here even at the time of my retirement from services in 1918, there were, so far as I knew, only three Indians in the whole of India who could flourish the coveted letters I.E.S. after their names.* Even Sir P.C. Ray, D.Sc., remained in the provincial service all his life. And there were several others equally well qualified.*

About the same time, or perhaps a little later, another incident took place which would also seem to call for a brief reference here. As was to be expected, the 1893 session of the Indian National Congress – the first to be held at Lahore created a sensation which I find it difficult to describe. Practically the whole of Lahore** was out to give a befitting reception to Lord Salisbury's

* Sir Jagdish Chandra Bose, F.R.S. (Physics), Dr. D.N. Mullick (Mathematics) and an Indian Christian gentleman (English) in Madras.

** The front had reached the Water-Works reservoir where an address was presented to Dadabhai Naoroji while the rear was still thronging the open ground in front of the Wazir Khan mosque.

“Blackman” who had been recently elected to the British Parliament by a liberal constituency. At one point in the city the procession was easily a mile in length.

I must not spend too much time over these details, but hasten to describe, as briefly as I can, the incident that concerns myself and my Indian colleagues on the staff of the Government College. In view of the popular excitement likely to be caused by the forthcoming Congress Session at Lahore, the Punjab Government had issued elaborate instructions to its servants, high or low, not to take an active part in the Congress movement, nor to help it in any way with funds or use their influence in support of it. This was all the more necessary because, at that time, Government servants were not debarred from joining political organisations. As I have already mentioned elsewhere, several college professors were regular members of the local “Indian Association of Calcutta,” then the most influential political society with branches all over the country. Accustomed to greater freedom as we had been, we felt there was no justification for the severe restrictions put upon our liberty of action. All the four Indian Assistant Professors met in a room at the college to consider the position under the altered circumstances. There was absolutely no difference of opinion upon one point, namely, that we should all stand together and that, whatever our decision, we should remain steadfastly united in support of it. In the event, we resolved that we should all attend the Congress as “Visitors”, that each of us should purchase a distinguished visitor's ticket, the fee for which was Rs. 50, but that instead of occupying a seat on the dais to

which we were entitled, we should content ourselves with a chair on the back row of ordinary visitors. We did not like to make ourselves too prominent in the Congress as that might have been construed as using our influence. Whether our line of argument was sound or otherwise, our decision served our main purpose of making a small contribution to the Congress funds within the four corners of the newly promulgated instructions for Government servants. It only remains for me to mention now that everything went off even better than we had expected. On the opening day a student steward (volunteer) came round to see our tickets. Finding out that we held "distinguished visitor's" tickets, he politely begged us to move to the more comfortable seat on the dais, but we made some excuse. The news soon spread among the small number of University students who had been persuaded not without some difficulty, to volunteer their services for the Congress session. Next day we learnt from Mr. Charles Golaknath, Barrister, who was captain of the Congress "volunteers" that on the previous evening a large body of college students had presented themselves before him for enrolment as volunteers. He added that while before the session began he was experiencing serious difficulties in finding men for taking up the various duties in connection with the Congress, he had now more offers even from senior students, than he had room for. We were further told that he had asked several of the candidates why they had been holding back so long as their uniform reply was that they had been advised by some friends not to enroll themselves as volunteers as that was sure to affect their prospects of service under the Government, when, however, they discovered that all the Indian members of

the Government College staff had purchased, on payment of Rs. 50 each, the distinguished visitor's tickets they took courage and offered their services in a body to the Congress. That such thing was likely to happen had never entered our heads before. Our only object in purchasing the distinguished visitor's tickets was to make a small contribution to the funds of the national gathering.

Now let me come back to my own experience referred to earlier. On going to the college after the examination was over, I spoke to Professor Oman about my strange experience. Without a moment's hesitation, he asked me if I was prepared to report the matter to the Principal (Mr. Eric Robertson). I said I had personally no objection to reporting it to anyone if he considered it advisable for me to do so. He said it was a serious matter and he thought I might speak about it to the Principal. I soon found out that the Principal was alone in his office room and as I was about to go down to see him, Professor Oman asked if I had any objection to his accompanying me to the Principal. I could not possibly have any objection, though I could not understand at the time why Professor Oman had made such a suggestion to me. Mr. Robertson heard me patiently and put one or two questions to me, but said nothing more definite to us than making the formal remarks: "I do not know what I can do in the matter." I was, however, glad that I had unburdened myself both to my senior Professor of Science and the Principal of the College. As the sequel would show, it was fortunate that I had seen the Principal in company with Professor Oman.

Nothing more was heard about the matter for a whole year. Next year something similar happened. I was selected one of the Superintendents of the examination for the practical examination in Physics. All the students were first assembled in the Government College Hall and it was my duty to send batches of students to the three or four examiners in a certain order fixed by the university authorities. In the hall, I heard some students discussing certain questions. Two of these questions I considered to be rather too advanced to be put to intermediate students but it was no part of my business as Superintendent to say any thing. I was there simply to maintain order and see that right batches were sent to the several examiners.

When the examination came to an end, to my surprise I had good reasons to suspect that, probably, some of the students knew at least two of the questions before-hand. As before, I brought the matter to the notice of Professor Oman. He said: "You reported the whole thing in my presence to Principal Robertson last year. I would not advise you to jump into hot water for nothing." Mr. Robertson had now left India and Mr. Dallinger has taken his place. Mr. Dallinger was a new-comer and I was not very familiar with him as I was with Mr. Robertson.

This time Professor Oman was also one of the examiners for the practical examination. A few days passed quietly enough when, one day, I was sent for by Mr. Dallinger to see him "immediately." When I appeared before him, his first question was if I knew anything about the "leaking out" of the Physics practical paper. I told him

exactly what I knew and how my suspicions were aroused. "But you never reported the matter to me or to the Registrar of the University (Dr. Aurel Stein)," he said in an angry voice. He went on to say a good deal about my responsibility as a Professor in the college and as Superintendent of the examination. As I began to explain myself, he cut me short and in rather a rough manner informed me that I should see Dr. Stein at a certain hour.

There was not much time to lose, I went straight to Dr. Stein. He was alone and was, in fact, waiting for me. He received me as one would receive a man who had already been adjudged a criminal. I found him in his classroom at the Oriental College. Dr. Stein held the joined post of Principal of Oriental College* and the Registrar of University. The moment he saw me enter and even before I had come up to his table, he shouted gruffly at me: "Ruchi Ram, why did you not report the leakage of the Physics Practical paper to me?" "I did bring the matter immediately to the notice of Professor Oman and he advised me not to jump into hot water for nothing," I submitted. This made him almost lose his temper. I did not know all that had happened during the last few days. "Lala Ruchi Ram, do you understand your

* I was then acting as *Kapurthala Alexandra Scholar* at the Oriental College in addition to my own duties at the Government College. As *Alexandra Scholar* I had to deliver three lectures a week in Urdu to the University Science Class at the Oriental College. I had also to translate a scientific book into Urdu with the approval of the university authorities. I may mention here that I translated the *Conservation of Energy* by Balfour Stewart (International Scientific Series) but, for eternal want of funds, the book was never published.

responsibilities as a Professor at the Government College, and the *Alexandra Scholar* at the Oriental College, and as an University Examiner and Superintendent of the examination.” “I know my responsibility full well, Sir. Last year I brought the matter to the notice of my Principal (Mr. Eric Robertson), but nothing happened and did not consider it necessary to bring the matter again to the notice of my Principal or yourself. But I informed Professor Oman immediately of all that I had come to know,” I said. Far from my answer satisfying Dr. Stein, it made him extremely restless as if he did not know what to say or do. Eventually he said: “This means that if an honest and straightforward examiner had not brought the matter to my notice, we would never have come to know of it.” “Whom do you mean?” I asked. “I mean, of course _____,” he said. At this reply, which would remind one of the well-known Persian couplet.* I could not contain myself but said: “Then your honest and straightforward examiner is himself responsible for the leakage.”

A scene that followed now was fit for angels to witness. A young Indian Professor, who was yet on the threshold of his official career, had dared to bring a serious charge in unmistakable language against a “White man.” Thinking of the incident many time during all these subsequent years, I have realised something of the infinite power and potency of “Fact” as against the

* I do not know if it came to my mind at the time, but certainly I did not use it, though it would have been quite appropriate for the occasion.

reverse of it. "Truth" is too sacred a word to be used in the present setting. This incident like some others to which I have referred to in their proper places, has been a beacon light in the so-called difficult path of my life. I have not found it very difficult after all. The sacrifices that I was called upon to make were as nothing when put by the side of the peace of mind and the satisfaction of the soul that I felt whenever I had the courage to walk along what Mazzini¹⁸ calls the "right line."

Dr. Stein was sitting in a chair on the dais with a table in front of him, while I had been standing on the floor below. There was no other chair in the room. Hearing the terrible words from my lips that his "honest and straightforward examiner" was himself responsible for the leakage, Dr. Stein flew into a rage. Suddenly, he came down from the dais, and stood as closely as possible face to face in front of me. I believe for once his nose touched my nose, but I would not be positive about it. "Lala Ruchi Ram," he said in red hot anger: "Do you know what you are saying. You are bringing a most serious charge against a White man." He added: "It will be necessary for me to report this matter to the Vice-Chancellor." Unmoved by his angry words and unshaken by his threat, I said: "Sir, I know exactly what I have said. This is not the first time that the questions were communicated to his own students beforehand by _____." I lost no time in mentioning the matter to my Senior in the college whenever anything came to my notice and every time I followed his advice." "Very well, you can give your explanation to the Vice-Chancellor."

Saying this, Dr. Stein asked me in a pre-emptory voice: "Give me a written statement which I will place before the Vice-Chancellor." I pulled out a sheet of paper from a wooden desk on his table and removing his ink stand and pen to a student desk in the room, I began to write out my statement. But somehow or other, at this moment there was a complete change in Dr. Stein's attitude towards me. He came up to where I was sitting and, speaking gently to me, said: "Lala Ruchi Ram, this is a very serious matter. Do not be in a hurry. Think over it carefully and send me the statement by tomorrow 4 O' clock." Ready as I was to write out my statement, I really was glad to be allowed more time for it, specially as I could have a talk with Professor Oman about the startling new turn of events before sending it to Dr. Stein.

From Dr. Stein's room I went straight to the house of Professor Oman. He was so much excited at hearing of what had passed between myself and Dr. Stein, that he rushed into an adjoining room to call his wife to listen my story. After I had repeated the tale of my recent adventure practically to the whole family who had now gathered around me, Professor Oman threw a further light on the real situation. He told me that he had quite independently known for several years in succession that the particular "White man" had been in the habit of explaining some of the questions set for the university examination to his own class a couple of days before the date fixed for the examination. The exact method adopted by him was as follows: The whole class was sent for one evening immediately before the examination

when the Professor would explain to them some eight or nine questions including the two or three that were set for the examination. As it happened once a student of Professor Oman's own class was also present when the important questions were being explained. He had been invited by a friend of his in the class of Dr. Stein's "honest and straightforward examiner." This happened a year or two before my own suspicions were aroused and it was really to confirm his own information received from one of his students that Professor Oman had suggested to me to report the matter to Principal Eric Robertson and even offered to go with me. This was a valuable piece of information that lent strong support to my own statement made only a couple of hours earlier to Dr. Stein. Another useful bit of news that I now heard for the first time at Professor Oman's house was that for reasons of his own into which I need not enter here, Dr. Stein's 'honest' informant had thrown the responsibility for the leakage of the examination paper of the year upon Professor Oman's shoulders. He did not know that incontestable evidence could be produced to show that the Physics practical paper had become known to some of the candidates for several years in succession when Professor Oman was not one of the examiners but he himself was.

Immensely fortified in my position in the manner I have explained, Professor Oman and myself together prepared a statement for submission to Dr. Stein. Professor Oman was now personally interested to clear up his own position. Dr. Stein's informant had over-reached himself

and there were many things that made the case against him as clear and conclusive as is possible in such circumstances.

Next morning when the university office opened, I personally handed over the document in a sealed cover and obtained a receipt for it. I never heard of the matter again. I do not know if my statement was placed before the Vice-Chancellor, or anybody else. The erring examiner continued to act in the same capacity for a couple of years longer when his name was dropped. From the increased consideration with which I was treated by many gentlemen high up in the counsels of the university at the time, I guess that at least some of them had come to know of what had happened.

* * *

III

My First Visit to Europe

Although I had long been wishing and planning to spend sometime in a British or continental university, it was under strange and entirely unexpected conditions that, at last, I was led to make up my mind, early in 1914, to carry out my long cherished intention. While I was yet a student at the Government College, I first conceived the idea of going to Europe for further study and there was a fair prospect before me of securing a loan at a small rate of interest, but as the scheme was about to mature I began to be troubled with the thought of educating myself with borrowed money. Again immediately after the arrival of Mr. A.C. Hermury as Professor of Science, I wanted to take one year's furlough, but I was asked to wait on the ground that my chief was a stranger to the country and it was not considered desirable that both the men in the Science Department should be new to the work. A year or two later I decided to give up service altogether and start some chemical works. This idea had also to be abandoned. But then an extreme painful incident came to pass — perhaps the most depressing and oppressing one that I have had to face in all my life. I have spent a long

time in considering whether I should not slip over it altogether but in view of the fact that the eventual publication of any autobiography will depend upon others, and not upon myself, I have with some reluctance come to the conclusion that I may leave the facts, as I know them, on record.

This unpleasant incident which forcibly turned my attention towards the desirability of spending sometime in Europe and carrying out some important piece of research particularly in the new subject of radioactivity. Somehow or other for the past two or three years, I had been very much interested in that subject and had been studying everything that I could lay my hands upon whether in journals or in books on that subject. Soon after my election as a Fellow of Panjab University, I became a Syndic and but for a break for a year or so, remained a Syndic upto the year 1921 when I resigned my Fellowship and all in obedience to the Congress mandate. As was to be expected during all these years I was one of the most active members of the university. Of course, I had my share of the examination work of the university. Once, about the time I am speaking of, I happened to be absent from the Board of Studies meeting at which examiners for the next year were to be elected. A few days later, I discovered that my name had been dropped as an examiner for the degree examination in science. There were two separate examinations in those days, as they are now, namely one on the arts side and the other on the science side. For several years continuously I was selected as an examiner either for the

B.Sc. or the B.A. examination. Professor Mouat Jones, then senior Professor of Chemistry, being appointed for the other examination. For the M.Sc. examination most of the work was taken up by Professor Jones. I may mention that I was at that time full Professor of Chemistry but in the Provincial Services while Mr. Jones was in the Indian Educational Service. I was much surprised to find that somehow or other the Board of Studies had selected Professor Jones as an examiner both for the B.A. and B.Sc. examinations. This I regarded as a slur upon me, but I believed at the moment that the omission of my name was from the list of examiners was nothing but a mistake and that there was no design on the part of anybody to supersede me. For an old teacher, as I was at the time, an examinership was not to be regarded as a question of money but of kudos. Besides there was no reason why Professor Jones should have been appointed an examiner for both the B.A. and B.Sc. examinations while his colleague in the Provincial Service who had been teaching the classes for quarter of a century was unconsciously ignored altogether. Puzzled and perplexed about the matter, I brought it to the notice of R.B. Shadi Lal (afterwards Sir Shadi Lal). He agreed with me that some mistake had been made and he said that he would see that my name was restored when the list of examiners was placed for confirmation before the Syndicate meeting. I may mention that both R. B. Shadi Lal and myself were members of the Syndicate and so was Professor Mouat Jones. Dr. J.C.R Ewing was Vice-Chancellor of the University at the time.

When the list of examiners proposed by the Board

of Studies came up before the Syndicate for confirmation, Mr. R.B. Shadi Lal proposed me the examiner for the B.A. examination in chemistry. The proposal was negatived by 5 against 4. I did not vote at all. He then proposed me for the B.Sc. examination with the same result. Next he proposed me for the M.Sc. examination with the same result again. The same thing happened with B.A., B.Sc., and M.Sc. examinations in physics. In the case of each of these six proposals made by R.B. Shadi Lal one after another the voting was 5 against 4. R.B. Shadi Lal then lost his temper, rather an unusual thing for a man who was well-known all over the province for remaining calm and cool even under circumstances of great provocations. Addressing the Vice-Chancellor, he said that he would ask for permission to propose that members of the Board of Studies should not take part in their own election for examinerships. Dr. Ewing replied that various complaints had come to his notice from other sources also but he asked R.B. Shadi Lal not to press his motion at that meeting adding that he would see to it that some reform in the direction indicated by Shadi Lal's proposal was adopted. Sir Shadi Lal then withdrew his proposal.

At the close of the Syndicate meeting, Mr. J.C. Godley (Director of Public Instruction) took me aside and asked me why the whole European staff of the Government College was against me. All that I could tell my boss in reply to his sympathetic enquiry was that my relations with them were generally very cordial and that I had no reasons to believe that any of them was hostile to me. He said that everyone of the European Professors in the college had voted against

me in each of those six proposals. He surprised me by expressing himself somewhat bitterly against the members of the college staff for reserving all their support for Professor Mouat Jones. He said that it was but fair that I should have been given part of the examination work for the senior classes, as I was teaching those classes myself along with Professor Jones. I thanked Mr. Godley for his sympathy and support and came away. Before leaving the room Mr. Godley himself told me that he had voted for me on each of Shadi Lal's six proposals.

Who is Better Chemist ?

Next day as I was about to leave college after the day's work, a very curious dialogue took place between myself and Professor Mouat Jones. He took me to his office room and offering the chair to me while he himself was perched on the corner of his writing table, he put the extraordinary question to me. (Professor Jones was all smiles as he spoke.)

Jones: “Rai Sahib, May I know who is the better chemist — yourself or myself?”

R.R. : “I do not know how that question arises.”

Jones : “You allowed yourself to be proposed as an examiner for the degree classes while the Board of Studies had selected me for the work.”

R.R. : “Let me tell you first, Mr. Jones, that

you are wrong in supposing that I allowed myself to be proposed for the Examinership. The fact is that I asked Mr. Shadi Lal to propose me. I believed my name had been dropped through some mistake."

Jones : "Oh! I did not know that you asked him to propose your name while the Board of Studies had definitely selected me for the work."

R.R. : "Yes, that is so."

Jones : "Then surely you consider yourself to be a better chemist than I am. How is it that Mr. Godley is so well disposed towards you!"

R.R. : "I do not know. I do not know how much chemistry you know and you have no means of knowing how much of it I know. I do not know if the D.P.I. is particularly kind to me. For the rest you may ask him directly."

Jones : "But surely you know that I am taking the M.A. classes in chemistry while your work is confined to the B.A. and B.Sc. classes. [He surprised me very much by telling me that he had overheard the whole conversation between Mr. Godley and myself.

He was behind the curtain between the Syndicate room and the big room used for senate meeting in those days.]

R.R. : “You were keen to take up all the teaching work for the M. A. classes and I did not mind it. In the other subjects young Assistant Professors are given M. A. work while I am a full Professor in the Provincial Service with a quarter of century's teaching experience to my credit. Provincial Service has been defined as a provincial service to the Indian Educational Service.”

Jones : “Whatever the reason may be, the fact is I am taking the M. A. classes while you are not.”

R.R. : “Mr. Jones you have been here for about six or seven years. Do you know that I have been in sole charge of the M.A. classes both in physics and chemistry for nearly seven years.”

Jones : “When was it?”

R.R. : “The first time I took the M.A. class was more than 20 years ago and since then I have off and on been in charge of the M.A. classes in physics or chemistry for odd periods of a year or so at a time.

I believe the total period will come to about seven years.”

Jones : (*Somewhat angrily*) “What did you say, about 20 years?”

R.R. : “Yes, Mr. Jones, you must be very young at the time.”

Jones : (*Losing his temper*). “What did you say? Will you repeat it?”

R.R. : “Mr. Jones we need not talk like this within College walls, I am quite ready to discuss this matter with you outside the precincts of the College.”

Jones : (*Angrily*) “I want to know when was it when you taught the M. A. classes.”

R.R. : “I have told you, Mr. Jones, it was more than 20 years back when I first taught the M.A. class in chemistry. As a matter of fact it was in 1887 that I first taught the M.A. classes in chemistry.”

Jones : (*Furiously*) “Oh! Oh!”

R.R. : “We need not talk further about this matter.”

Jones : “No, No! It is very interesting: What did

you say? I was very young at the time!”

R.R. : “Mr. Jones you must be twadling on your knees at the time.”

Jones : *(Loudly)* “Then surely you must be a very great chemist!”

R.R. : “I do not know, I have not said so, Mr. Jones, it is not nice for two members of the Staff to be talking like this within the College premises.”

Jones : “But you must answer my plain question. Who is a great chemist?”

R.R. : “I have said I do not know. I had no occasion to test your knowledge of chemistry and I do not think you had occasion to test my knowledge of chemistry. But if you like we can easily find that out. You fix a portion of the subject for me and I will lecture on that subject to any of the classes you name. You can be present while I am lecturing, say for a fortnight. Similarly, I can name a subject for you and ask you to teach that subject to a class selected by me for a fortnight, while I would be present in the class room. At the end of the period, we can criticise the work of each other and thus find out how

much we really do know and how much we do not know.”

Mr. Jones was very much upset over my suggestion of a method for testing each other's abilities. After a little further parley leading nowhere, he took me into his confidence and told me that the Board of Studies had passed me over, because in their opinion, I was a very lenient examiner. I asked him why did he not mention this interesting fact at the Syndicate meeting to explain the reason for omitting my name from the list of examiners and selecting him instead. I added that if I was a lenient examiner I was lenient for one and all and not only for my own students. Although I was an Indian and therefore more accessible to everybody than, perhaps he was, no one had dared to approach me for any special favour. On the other hand, it was well-known that he (Mr. Jones) would go round to his own students, in the Hostel and hint to them what questions were going to be set for the practical examination. I further explained to Mr. Jones that it was a habit with me to give a grace mark to everyone who failed for one mark only. Thus if the pass marks were 25, all students who got 24 marks would have the benefit of grace mark from me. This was done for years in the past in the case of all candidates and not of a selected few only. On the other hand, I told him I knew of a case when he (Mr. Jones) and another Professor from a sister college at Lahore were co-examiners. A certain student got 16 marks only while 17 marks would have seen him through. Mr. Jones was not willing to give the examinee one mark more. He was in favour of keeping back while

his colleague was of a different opinion. I told Mr. Jones that we had no fine chemical balance to judge of the abilities of students. If I was a lenient examiner, he (Mr. Jones) was a stiff examiner,” I said. Further I added:

“I am sorry, Mr. Jones, you did not tell the Syndicate on that day why my name was omitted for degree examination. If you had done so then I would have asked the Syndicate to leave out your name instead of mine. I would have told them of the case of the poor candidate who got only 16 marks while 17 marks could have seen him through. Yourself and your colleague discussed the fate of the poor fellow for 10 or 15 minutes and as you both did not agree as to whether he should be declared to have passed or otherwise, on your suggestion it was decided to settle the matter by a toss of the rupee. Luckily for the candidate, he won the toss and became a B.A. I would have taken out a rupee from my pocket and, tossing it up, I would have told the Syndicate that was how the B.As. of the University were made.”

This almost frightened Mr. Jones and he at once softened down and told me in very gentle words that we were friends and had worked together for a number of years. He added that at the next Syndicate meeting, he himself would propose that I should be appointed an

examiner for one of the degree examinations in the manner I had served in previous years. We parted as friends and in due course of time I was reappointed an examiner for the B.A. or B.Sc. examination. After this I remained under the impression that we had completely made up with one another and that not a trace of ill-will remained between us. Strange as it may seem, this was far from being so, although, outwardly our relations with each other remained cordial.

I Was Kept in the Dark

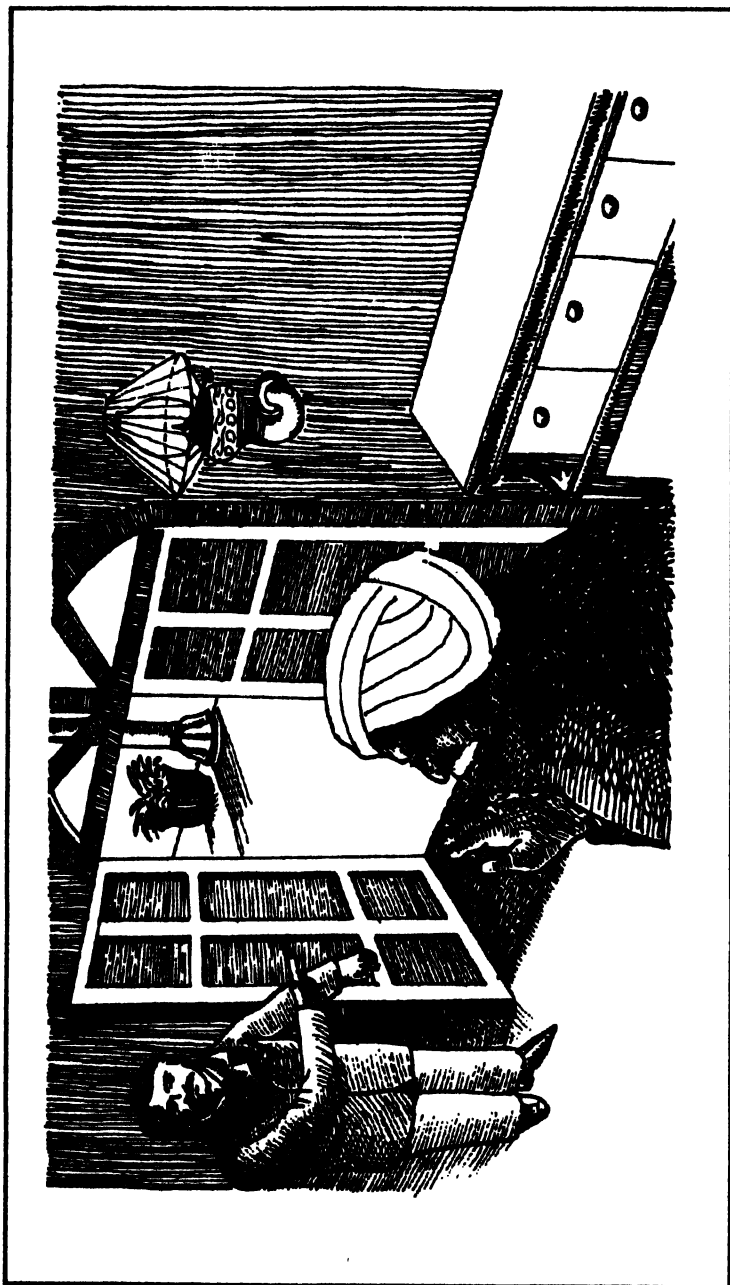
Sometime later Mr. Jones accepted a post in England. There was thus a vacancy in the Chemistry Department of the College. In ordinary circumstances, there was no reason why I should not have automatically stepped into the shoes of Mr. Jones leaving my own post to be filled up by someone else. As things stood, however, this was too much to expect, as I have already explained at some length. On the recommendation of the Public Service Commission (1886) with Sir Charles Aitchison as Chairman, all the higher posts were put into separate categories called the Indian and the Provincial Services. They were declared to be parallel services but, in practice, a wide gulf was created between them not only regarding the salaries of the incumbents, but even more so in respect of the conditions of service and the privileges attached to the two classes of appointments. Indians could aspire to rise to the top of the Provincial Service with Rs. 700 as their mensum pay, while ordinarily, Europeans were appointed to the Indian Educational Service. On the retirement of Mr. Oman, the Senior Professorship had been

put into the Indian Educational Service, a solution being offered to me by creating a second Professorship in the Provincial Service. It was well-known that though theoretically there was no bar to an Indian being appointed to the Indian Educational Service, the doors of the coveted service were so jealously guarded against the admission of Indians that to all intent and purposes it was treated as a close service reserved for Europeans only. With my previous experience I could see no reason that an exception would be made in my case and that I could aspire to fill the new vacancy permanently. Even at the time of my retirement in April, 1918, there were only three Indians in the whole country in the Indian Educational Service. But it was a foregone conclusion that till the permanent incumbent was appointed I would have to act as Professor-in-Charge of the Chemistry Department and that someone else would be selected to act in my place. Mr. Jones himself went a good long way to confirm this belief although it was not necessary for him to do so. He would often tell me how much each of his classes had done, in what subjects they were weak and what portions had been left out so that I might know exactly what work had already been done and what portions had been left out altogether or not done sufficiently well. I am sorry to have to record here that this was all a camouflage adopted purposely with the object of throwing me off scent. While he was spending so much of his time with me in explaining to me in minute details even the stocks of chemicals and other incilllers to which only the man in charge of the laboratories has to add, he had made a secret report to the head of the department against me and as there was no one else in

the province to take up the work someone should be imported from outside Punjab. By a mere accident I came to know only a couple of days before Mr. Jones left Lahore that one Mr. A who had lately passed the Ph.D. examination of a German university and was then preparing himself for the M.A. examination of an Indian university had actually been selected for the officiating post and that he was expected to arrive at Lahore in a day or two. It is difficult to imagine the shock which the news gave me, the more so as it was against all my previous conceptions of men in the position of Mr. Jones. I cannot put down on paper all that passed in my mind but certainly my whole conception of things was a good deal recast. For the last day or two that Mr. Jones was at Lahore, our relations were very strained and everyone could see that whatever might happen I was not expected to be present at the farewell meeting which was being arranged in his honour. Once again I was fooled. Professor G.A. Wathen came to me and begged me not to keep away from the meeting. He had some kind of a story about the appointment of the new man according to which Mr. Jones had not played any important part in the bringing of a young chemist fresh from the university to supersede me. He told me that he had read Mr. Jones' address in reply to the students' farewell address and that, in that address, Mr. Jones had said a great deal about me which he could never have said if he had been responsible even in the remotest manner for what had happened. With great difficulty he got a promise from me that I would not keep away from the farewell meeting. Mr. Jones did read out the appreciatory remarks about which Professor Wathen had spoken to me, but I found out afterwards that these

remarks had been written out on a separate slip and that this slip was taken away by Mr. Jones while the rest of the address was handed over to the Principal for reproduction in the college magazine. When I pointed this out to Professor Wathen, he admitted the trick that had been played upon me and said with an air of boasting that Mr. Jones had proved himself to be cleverer than myself. I would add that although Mr. Jones was certainly cleverer than myself, he as a victimiser had lost a great deal more than his victim.

A day or two after Mr. Jones' departure I went up to Principal Col. Stephenson and complained about my suppression and the false report by Mr. Jones against me. I reminded him of the grudge which he bore against me on account of the incident in the Syndicate meeting over the Degree examinership. I spoke rather sharply about this matter and happened to say more than once: "That will not do." Col. Stephenson turned round and took me severely to task for speaking against an Englishman saying how dared I tell him that an Englishman would make a report like that against me because he bore me a grudge. He asked me angrily: "What will not do?" "What will not do?" I said that hitherto I had been under the impression that I was a senior officer of the department, but now I understood that was not so. I had put in 27 or 28 years of service and could not afford to say goodbye to the department and walk out of the college without a pension, that while I stuck to my own opinion I would not say more about the matter to him because I could not afford to lose my pension, that I had so nearly earned. So saying I got up and walked towards the



"I would not commit another indiscretion in allowing the head of the college to open the door..."

door. Col. Stephenson then rushed towards the door and opened it for me to pass through. I said that I would not commit another indiscretion in allowing the head of the college to open the door for one of the juniormost men under him. I remained there for 2 or 3 minutes while the Principal also stood there all the time holding the door wide open. None of us knew what to do. He would not go back to his chair and I would not pass through the door which had been opened by him. Eventually Col. Stephenson solved the problem by saying: "Oh! I am also going home" and with these words he passed out of the door first and walked away to his own bungalow.

Now a strange psychological phenomenon took place. Coming home from the college I found that my whole soul was on fire. I did not know what to do. I remember walking up and down the big room which is now the drawing room in our house. It was a strange state of pain and agony in which I found myself. "Who is this man, Jones?" I said to myself, "to sit in judgement upon me and my abilities?" But the thing had been done and both the Principal and the Director of Public Instruction have unhesitatingly put the seal of their approval upon what Mr. Jones represented to them. I was in intense agony at the thought that my life-long service should have been brushed aside under some report of a young man simply because he was an Englishman. I remained in that intensely perplexed and agonised frame of mind for about half-an-hour all the time walking up and down the room. And then suddenly I burst out with the following words which I uttered again and again as I walked up and down the room: "Am I a live fish? Am I a dead fish? Can

I swim up the current? Can I swim against the current? Shall I float down the current? Am I a dead fish? Am I live fish?" Then after a few minutes I said to myself: "I am a live fish, I can swim up the current. I shall swim up the current. I am a live fish."

The utterance of these words gave me intense satisfaction and brought me a great relief. After a short time I went to bed and had a sound sleep for an hour or so. The same afternoon I made up my mind finally and irrevocably to go to Europe and spend sometime there in research work. Hitherto I had been anxious to carry on research work for the love of it. In spite of great difficulties—some idea of which may possibly be formed by the incident to which I have just referred*—I had been occupied with several problems hoping to finish the work after a visit to Europe. Mr. Jones' action had added a spur to my desire to visit Europe which nothing could resist. Before the night came I had gone round and fixed up with a German Catholic padri (then working at the Roman Catholic Church at Lahore) to teach me the German language.

My Interest in Radioactivity

The subject which I wanted to study in particular was radioactivity. Somehow or other for the past few years I

* I wish to save myself the pain of mentioning some of these difficulties. In the India of those days very little research work in science was done. In the case of Indians there were serious difficulties and in the Punjab these difficulties were multiplied tenfold.

had, so far as it was possible with the help of books and one or two journals I had made myself quite at home with it on the theoretical side. As I was anxious to set to work as early as possible I had written to Professor Smithels to make the necessary arrangements for me at a German university where I could study the subject and carry on research in it with a competent Professor.

Immediately before leaving Lahore I had been particularly interested in the exact determination of the atomic weight of lead and of bismuth. My interest in these two problems was excited by the fact that in the course of an elaborate investigation into the laws of solubility of salts of various kinds, I had noticed that the atomic weights determined by several competent investigators showed variations far beyond the limits of possible errors of experiment. After some reflection I came to the conclusion that some extraneous factor was interfering in the exact determination of the atomic weight of these two elements and that, very probably, in both cases, some other metal was mixed up with the so called pure "lead" and "bismuth," in minute but varying proportions and that it was this unknown metal (or metals) that was responsible for the different values for the atomic weights obtained by various experimenters.

It was Dr. Kasimir Fajans ¹⁹ to whom I was directed to go by Professor Smithels and in whose laboratory I finally settled down for research work on the problems Dr. Fajans had himself been occupied with—the possible existence of the extraneous matter to which I have just referred to.

It was not necessary in those days to obtain passports from the government. A certificate of identification was sometimes taken by people proceeding to a continental country. I, therefore, had applied for a certificate of identification to the Deputy Commissioner of Lahore but when the time came for me to leave India, the certificate was not ready. I was assured by friends that, although it was good to have a certificate of identification, it was not essential to provide myself with one and that very likely it will not be required at all during my whole stay abroad. It so happened that at Bombay I went to see an old friend, Seth Bhagwan Dass, who had travelled a good deal both in Europe and in China. On his advice, I wired to the Deputy Commissioner of Lahore to send me the certificate of identification care of the post office at Heidelberg. This advice proved to be of immense help to me because, owing to the outbreak of the First World War²⁰ while I was in Germany, I would not possibly have got out of the country without this certificate.

On board the steamer, I had the good fortune of meeting a Tyrol German who was going home after a stay in this country for 18 years. I used to receive regular lessons from him and carry on a little conversation in German with him. The steamer belonged to the Austrian Lloyd Company. I landed at Trieste. On the way I had also frequent occasions to talk to the crew who, though Italian, knew German very well. It was in the course of these conversations that I came to know my deficiency in spoken German. My *Padri* teacher at Lahore had been so

long away from home that his pronunciation was more English than German so that when I first heard German spoken on board the steamer by which I sailed from Bombay, I could not understand a word of it. Luckily for me, I had my companion a Lahori friend who was going to England through Germany for purposes of trade. He was of considerable help to me in various ways. He was doing some kind of "agencies business" in Anarkali. He was a very enterprising and entertaining young man. It was a real pleasure to make his acquaintance. I have a foggy notion that his name was Lala Shankar Dass but I am not quite sure. I have met him once or twice at Lahore since our return to India. On board the steamer I also made friends with the wireless operator and used to spend portion of my time off and on sitting by his side learning all about the working of his apparatus. It was of the 'Crystal' type and he told me with unconcealed pride that he could send messages to a distance of 2,000 miles. He was a talkative fellow who had travelled a good deal and was full of interesting stories about various countries. Another person whose acquaintance I cultivated was the chief cook of the steamer. He used to give me some of the best dishes and nice pastry some times at tea or on other occasions. I believe he looked after me so well because once specially when he became ill and was confined to his cabin I attended him in his sick bed and gave him a few shillings, over and above the usual contribution of 10 marks which was collected from all the passengers and distributed among the servants of the ship.

At Heidelberg

I was directed by Professor Smithels of Leeds University who had made all the arrangements for me to go to Dr. Fajans at Karlsruhe about 25 miles from Heidelberg. Somehow or other I came to know that at Heidelberg a German lady, Frau Scherer, kept a home for lodgers from all parts of the world. She was a born teacher of the German language. I decided to stop at Heidelberg for a day or two before proceeding to Karlsruhe. On the way I wired to Frau Scherer to send someone to meet me at the railway station. On getting down at Heidelberg I found her daughter waiting to receive me and conduct me to their "pension" situated on the slope of a hill on the right bank of the beautiful Neckar river. Here I was lucky to meet an Indian student who was of very great help to me afterwards. His name was Dr. Hudlikar. He was an M.A. in geology from the Bombay University. He had worked for sometime as a Professor of the subject, I believe, at the Ferguson College, Poona, and had been making a further study of it at Heidelberg. Dr. Hudlikar was staying at the Home where I lodged for two or three days before proceeding to Karlsruhe. We became great friends and almost every evening we had long walks together. During my stay at Karlsruhe I also used to come to Heidelberg to see the University and meet some of the famous Professors there. It was also here sometime later, that I met another very charming Indian student who is now son-in-law of Pandit Motilal Nehru — Mr. Ranjit Singh Pandit of Rajkot. He claims of a very high family and certainly his bearing and manners were those of high bred young gentleman. A special link was established

between us when I came to know that he was a nephew of a great Vedic scholar, Shankar Pandurang Pandit, who was a leading member of the *Prarthana Samaj*²¹ and whom I had known intimately 28 years earlier. Personally, I shall never forget the kindness which both Hudlikar and Pandit showed to me at the



Motilal Nehru

time of my sudden departure from Germany. I will have something to say about it later on. On more than one occasion when we went out for an evening stroll together—Hudlikar, Pandit and myself I noticed that Pandit attracted the attention of young German girls by his handsome face and soft dark curly hair. Twice I saw these girls approaching him and apologetically requesting him to let them enjoy the feel of the soft velvety hair on his head.

It was at Heidelberg, again that I met Professor Leonard. He was an interesting figure. He used to have a daily walk on the banks of the beautiful stream, Neckar, moving his head from side to side as he walked. At Heidelberg I went to see Professor Goldschmidt. He was

kind enough to come to the laboratory during vacation time specially to show me his elaborate goniometer and explain its construction and working to me.

From Heidelberg I went to Karlsruhe in the company of my friend Professor Hudlikar and having left our things at the hotel we went to see Dr. Fajans at the Technische Hochschule. Dr. Bredig, the famous specialist in catalysis, was the director of the Institute.

Dr. Fajans was about forty years of age at the time and he had already made a name for himself in radioactivity. The *London Times* mentioned his name as one of the six best men in that department of science living at the time. Dr. Hudlikar left me within a few minutes of our arrival at the Institute as he had to catch a train back to Heidelberg. But I had absolutely no difficulty in making myself at home with Dr. Fajans—thanks mainly to his kindly and cheerful temperament, no less perhaps, than the commonality of interest which was soon established between us. After the necessary formalities and trivial comments about the voyage and so forth, the following interesting conversation ensued between us.

Dr. Fajans: “Professor Sahni, may I know if you have been at all interested in any problem connected with lead.”

R.R.Sahni : “Yes! For the last few months I have been working on the very interesting question connected with the atomic weight of lead.”

Dr. Fajans : “How far did you proceed with the work?”

R.R.Sahni : “I have been engaged on the purification of one or two compounds of the metal and the study of some of the literature connected with the best determinations of the atomic weight of lead.” (I also told him that I had got the notes of what I had done.)

Dr.Fajans : “This is very interesting, but how were you led to think of this question?”

R.R.Sahni : “I have been occupied with the formulation of certain laws or relationships between the solubilities of various compounds and their contents, the atomic weight being an important factor in these studies. It became necessary, therefore, for me to find out the most careful determination of atomic weight for each of the element with which my studies were concerned. In the case of lead, I was surprised to find the atomic weight determinations made by competent chemists varied considerably from one another. I, therefore, came to the conclusion that these divergences could not be due to mere errors of experiment but were caused probably by the presence of a small but varying quantity of some other compound mixed up with the lead salt.”

Dr. Fajans : “This is very interesting, Indeed. It is a pity you did not proceed very far. You will be interested to find that I have anticipated you.” And with these words he pulled out from his drawer a short paper which had just been published on Radium D. He explained to me that he was led to think of the question on somewhat similar lines and that Radium D was the substance which mixed with metal lead in varying quantities. It was causing all the mischief which had perplexed a whole generation of chemists including the two persons who were talking together in that laboratory.”

Dr. Fajans' next question to me was related to bismuth. I told him that while I had thought of a similar problem in connection with the atomic weight of bismuth, I had not done any practical work in connection with it. Dr. Fajans was very much struck by the fact that I should have thought of two problems one of which he had himself just solved and the other of which he had only lately taken up. He asked me to join him in attacking the second problem. On my showing some reluctance in accepting his suggestion, he said: “Perhaps you would like to do it all by yourself.” To this I said: “No! Dr. Fajans, that is not the real reason of my hesitation in taking up this question in collaboration with you. It would be a matter of real pleasure to me to work at a problem in collaboration with you, but I realise now that the problem of the atomic weight of bismuth is at

bottom not a chemical problem at all but a problem in radioactivity. The problem of the determination of the atomic weight of lead which you have just succeeded in solving was also not a chemical problem, as I had imagined it to be, but a problem in radioactivity as you have just explained to me. The whole stock-in-trade of my knowledge of radioactivity consists of book learning. I have never handled even the simplest measure instrument and it would be wrong of me to retard your own progress by presuming to work in collaboration with you."

Dr. Fajans: "No, Professor Sahni, you will not take more than a month to learn all the techniques of radioactivity. It is a young branch of knowledge and there is really not much to learn about the measurements such as we will have to carry out in connection with this question. On the contrary as a chemist you will be of real help to me in the preliminary operations of various kinds which it will be necessary to carry out before we come to the stage of subjecting the purified compounds to exact measurement of their radioactive contents."

The long and short of it was that I consented to join Dr. Fajans in undertaking to determine the correct atomic weight of bismuth. There were some seven Professors

and private-docents in the Institute with about twice the number of research workers. All the workers were men of advanced age though much younger than myself. One of them was an English lady, Miss Jones – a very interesting figure, who was as clever in her research work as she was in making arrangements for providing tea for all the workers in the Institute. The Director of the Institute I knew by reputation long before I left India. I had once written out and delivered six lectures on his researches in catalysis. Of all the men in the Institute, Dr. Bredig was the most shabbily dressed person to be seen in the laboratories. He was very slow in his movements and in every way quite unimpressive. He would often come to try my room and sitting by my side for a few minutes would discuss with me how I was getting on with my problem. One Dr. Reiss – a private docent appeared to be the smartest man. I had nothing to do with him, but he would come to me now and again to offer suggestions to me. On one occasion he asked me to accompany him to the library where he pulled out some ten volumes of journals and pointed out a number of papers which he said would be helpful to me in the particular investigation upon which I was engaged. The whole place was charged with inspiration and enthusiasm for work. I found myself working in his laboratory as an earnest student on a definite problem which I had assigned to me and in which I found myself quite absorbed as if I had been working at it for years. I am sorry to say that the work was interrupted before it had proceeded very far by the outbreak of hostilities at first between Germany and Russia followed by those between Germany and Austria on one side and France, England etc., on the other. It is a matter of very great regret to me that I was deprived of

the splendid opportunity of carrying on an important piece of investigation in collaboration with such famous scientist as Dr. Fajans. It is interesting to recall some of the incidents connected with my short stay at Karlsruhe. I used to go to the laboratory at about 9 A.M. after taking a simple breakfast at the Carpfen Hotel. The breakfast generally consisted of small roll of bread, some honey, an egg, a cup of coco or milk and some fruits. At about 1 P.M. I would have my lunch in a neighbouring restaurant. From half-past-one to half-past-four I was busy with my work again in the laboratory when I would go and make a little tea myself and take a cup or two or rather a beaker or two with a couple of biscuits. This tea arrangement was very simple but interesting affair. Miss Jones whom I have already mentioned would light up a Bunsen's burner in one of the windows of a corridor and place a large tea kettle filled with water on the flame.

One day returning to my hotel I found any number of troops marching through the street and in some places it was difficult to pause for half-an-hour or so. Within a few hours the whole aspect of the place was changed and everyone was talking about the war; probably it had been declared by that time. Although my impression is that all that I saw at Karlsruhe was only for the preparation of the war that was coming. When I got to the hotel Mr. Koch, the proprietor of the hotel, told me that it was too late for me to leave. He advised me to remain at Karlsruhe as it was almost impossible for me to get away from the country. I was just two days late, he said. I asked him if I could get a car to take me to Heidelberg but he shook his head and said it was impossible. He said he would not advise me to

move out of the hotel for a few days, adding that the preparations on a great scale had already began and the troop trains were in motion. I sent telegram to my friend Dr. Hudlikar at Heidelberg asking him to come and take me away, as I was feeling very nervous in my loneliness at Karlsruhe. A few hours later I had a call from Dr. Fajans. He apologised vociferously for having detained me. He said it had become too late for me to get away to England. He advised me to remain in Karlsruhe during the war promising that his wife would look after me although he did not know where he himself would be as he was a reserve officer and would be called to his regiment soon after the war was declared. Both Koch and Fajans promised to help me with money to any extent in case my own money did not come. I told them I had a few hundred pounds with me lying in a bank at Karlsruhe and that it would last me for a year or more. I shall never forget the excitement which was to be noticed all round at Karlsruhe.

After waiting for some hours, I got a telegram from Hudlikar informing me that he had been 5 or 6 hours at the railway station but could not get a seat in a train to take him to Karlsruhe although troop trains were running every few minutes. While I was yet reading the telegram I heard a knock at the door and on opening it I was delighted to find that the caller was no other man than Dr. Hudlikar himself. He said he had bribed a porter who had shoved him in one of the guard's carriage just as the train was about to start. My things were already packed up and within half-an-hour of his arrival at the hotel we got into taxi which my friend found with some difficulty and drove

to the railway station. Here we again used the same magic words "open sesame" as Dr. Hudlikar had found helpful in getting me an admission clandestinely into the carriage. We reached Heidelberg late at night and were comfortably accommodated in the hospitable pension of Frau Scherer.

I stopped at Heidelberg for a couple of days during which time I made all the necessary arrangements for leaving Germany for England. I tried to get one or two companions from among the Indian students who were living at Frau Scherer's. There were a dozen men at this time but one and all of them said they were advised not to leave the country because it was dangerous to do so. The troop trains had begun to move in every direction and the whole country was in a state of commotion. The one subject which was being talked everywhere was the war with Russia and the chances of war breaking out with France and England — the position of England was being particularly discussed. Instead of inducing others to leave the country and go with me to England, I was being induced by everybody to stay there. I was told that it had already become too late. The last train that was to leave Heidelberg by which we could travel to Holland was that which was timed to start sometime in the afternoon of the 2nd August, 1914. I had to change at Mannheim — a distance of about 25 miles, I think from Heidelberg. While passing through the streets to the railway station in order to make certain enquiries I noticed that I was being shadowed by a German. I was then accompanied by Dr. Hudlikar. In order to make sure if our conjecture was correct we passed right through a big crowd which had collected in the street watching and discussing an aeroplane which had appeared



overhead. It was said that it was a detective Serbian aeroplane. On passing out of crowd and walking on we found the same person still following us. Reaching the railway station I stood outside while my friend went in to make necessary enquiries. The detective, for such he proved to be afterwards, was standing at some distance from me. When my friend came out of the station, we two walked up to the detective and told him that he had been following us. He said, "yes " We asked him if he wanted to know who we were and what we were doing at Heidelberg. In a short time we had told him all about us. He then told us that we had been taken for Serbian spies and that is the reason why he had been following us. Serbia was at that time at war with Germany.

On the 2nd August I left Heidelberg. My two friends Dr. Hudlikar and Ranjit Singh Pandit accompanied me as far as Manhein. It was very brave and kind of them to do so. They knew that there was no return train that day as every passenger train had been cancelled for the movement of troops backwards and forwards. The popular excitement knew no bounds. Even little children were talking of the speedy accession of Russia. That shows the spirit of the German children at the outbreak of war with Russia. I remember a little boy, son of a German Professor at Heidelberg shouting out to Hudlikar: "Hudlikar, Hudlikar! *Russland badshe sein!*" (Russia will become part of Baden). There were other incidents also which told the same story. The Professors were as much excited over the war as anybody else. I remember attending a meeting of about 10,000 persons where learned lectures were given by the university Professors detailing the history of the

relations of Russia with Germany in the past and justifying the declaration of war against Russia on the present occasion. One thing, however, showed to me as clearly as anything could do within a few days after my arrival in England that Germany was no match for England. It was this:

I had the equivalent of about 3,000 rupees deposited in German banks at Karlsruhe and at Heidelberg. Within a couple of hours I was able to get back the whole of my money from the banks in English sovereigns. They charged me a small discount for this purpose but otherwise they made no difficulty whatsoever in allowing me to bring gold from Germany into England. Arriving in England and depositing all my money in a bank I found to my great surprise that I could not draw back a single gold sovereign from the bank. Most of the money I wanted was given to me in paper and only a small amount in silver or copper. Even when I was leaving England for India, I could not induce the bank manager to give me five gold sovereigns to be used for my expenses at Bombay or on my own way to Lahore.

This is a digression. As I have said above on the afternoon of 2nd August 1914, I left Heidelberg for Holland. Hudlikar and Pandit got into the same train with me. They insisted upon coming with me as far as Manheim so as to see me safely got into the train again. Brave fellows, they must have walked back the whole distance to Heidelberg that afternoon.

IV

The Punjab Science Institute

The Punjab Science Institute, and the Scientific Workshop which I established in connection with it, absorbed such a big slice of my time and attention that some account of them would seem to be called for in a story of my life. The idea of the Institute originated with Professor J.C. Oman of the Government College; when I was yet in the M. A. class at the college and before, I had proceeded to Calcutta. We used to discuss the need and scope of such an institution. But it was only in the summer of 1885 to say after I returned from Calcutta and explained to Professor Oman what I had seen in the Sircar's Institution, that a society under the name of the Punjab Science Institute was actually established with Professor Oman as Honorary Secretary and myself as Joint Secretary. Our original aim and object in founding the Institute was the popularisation of all kinds of scientific knowledge throughout the province by means of lectures (in English and the vernacular) illustrated with experiments and lantern slides, as well as the publication of tracts. After a couple of years

we expanded these objects to include the encouragement of technical education and in particular, of chemical industries. For this purpose some cash prizes were also offered by the famous Malik Jowala Sahai of Miani (near Bhera), for short papers on the manufacture of soap, indigo and such like industries.

In pursuance to the original object of the Institute, Professor Oman delivered several lectures on various subjects connected with electricity and magnetism, while Dr. C.C. Caleb of the Medical College, selected subjects illustrating different aspects of the "Build of the human body." Two of his lectures which had to be repeated were particularly well received by the public which consisted mainly of students and teachers with just a sprinkling of the general public. Caleb's two lectures I am referring to were entitled "Man's fear" and "Smokes: poisonous and non-poisonous." Subsequently, several other gentlemen, almost all of them lecturers in colleges, also came forward to take a share in the activities of the Institute. One of these gentlemen who had a special gift of making his lecture interesting and popular was Dr. Grant, for sometime he served as Chemical Examiner to the Punjab Government. He spent an enormous amount of time on the preparation of his experiments which were, as a rule, repetitions of published lectures delivered at the Faraday Institute or other similar scientific bodies in England. Several of his most successful lectures were thus repetitions of popular lectures published in the form of Romance of Science Series such as C.V. Boys' *Soap Bubbles*,

Michael Faraday's *Chemical History of a Candle*, Perey's *Spinning Tops*, *The story of the Tender Box* etc. Very often even the language and stories were reproduced from those books without a word of acknowledgement.

Although I was appointed as joint secretary from the very beginning and was a co-founder of the Institute with Professor Oman, for the first two years I was posted at Simla. As I have mentioned elsewhere in this chronicle, I began my official career as Second Assistant Meteorological Reporter to the Government of India, Mr. W.L. Dallas occupying the position of First Assistant. While thus employed in the Meteorological Department, I delivered three lectures in connection with the Punjab Science Institute on the "Weather," of course with special reference to India. At two of those lectures, Mahadeoa Govind Ranade²² did me the honour to preside. This was in 1886, when he had come to Simla as a member of Finance Committee appointed, I believe, in connection with some riots in the Deccan arising out of rural indebtedness. Ranade was at Simla for several months together and the public made excellent use of the opportunity of meeting and listening to him as well as Shankar Pandurang Pandit, a great Vedic Scholar. Shankar Pandurang Pandit was an uncle of Mr. Ranjit Singh Pandit who was happily allied with the illustrious Nehru family. My three lectures on the weather were given in the hall of Government School, then situated a little below the Mall. What surprised and pleased me immensely was the fact that Ranade showed an unexpectedly good acquaintance with some of the facts and problems

discussed in the lectures. Shankar Pandurang Pandit also attended the lectures. Pandit and Ranade lived together while in Simla – and took a keen interest by asking some questions at the end of each of my lecture. The lectures were illustrated with charts, some of which I had brought from my office. One big chart showing the course of the monsoon and the cyclonic storms had been specially prepared for the occasion. The lectures created great interest and were attended by several Indian and European gentlemen. The bulk of the audience, of course, consisted of Bengali clerks with whom all the Government of India offices were in those days packed. I well remember, the Bengalis brought the house down with their laughter when, in the course of one of my lectures I said that the Government of India might be able to go on without the Bengali clerks in their Simla offices, but I did not know what northern India would do without the monsoon rains almost the whole of which came from Bengal, the Bombay current being mostly spent on the way and what was left of it being completely stopped by the Aravalis. I pointed out that the difference between the green northern districts of the Punjab and the arid south eastern districts such as Hissar and Sirsa was the difference between the contribution of Bengal and Bombay to our agricultural prosperity. Hailing as he did from the western Presidency, Ranade, as Chairman made some illuminating remarks about Bombay's part in the economic welfare of our province. Similarly, my Muslim friends must have been gratified to learn that we were indebted for our winter rains to Persia. The serains came to us with the anti-cyclones whose

Persian origins had by this time been fairly well established. I may mention that one of the three lectures was devoted entirely to the complete change over of the weather conditions from the summer to the winter and *vice versa*, both the turning points being marked by the occurrence of somewhat unusual meteorological phenomena like heavy dust-storms, thunder-storms and hail-storms.

Lantern Slides

I have said that the lectures were illustrated by lantern slides in addition to charts. Now it was not easy in those days to get lantern slides made. Perhaps even now most teachers cannot obtain their necessary appurtenances for popular lectures and, except at a few metropolitan towns no professional facilities exist for the manufacture of lantern slides. It may interest teachers to learn that in the absence of modern help in the form of the epidiascope, it is possible to make simple slides for illustrating such lectures as I was called upon to deliver at Simla. I smoked over a candle flame a few glass pieces cut to the size of lantern slides and then with the point of pin traced the arrow heads long or short, as the case may be, representing the direction and strength of the wind currents as well as isobaric and isothermal lines. A lecture on the cyclones or anti-cyclones can thus be very well illustrated to a large audience without incurring any expense whatever. The smoked slides with which my own lectures were, in part, illustrated, went off beautifully. When, a little later, I joined the staff of the Government College at Lahore, I repeated these

lectures. On the advice of Professor Oman one of these lectures was written out in full and published in pamphlet form. I am sorry, no copy of this lecture is now available. I believe this was the second of the series of lectures I delivered at Simla and repeated, with certain amplifications, at Lahore. It related to the monsoon rains and the cyclonic storms.

In repeating the lectures at Lahore, I also varied the forms of my slides, some of which showed very well on the screen. Instead of smoking the glass plates on a candle flame, I dipped the plates in a thin solution of gum and then let them dry in the sun. The object of this simple operation was to make the surface of my plates slightly rough so that it was quite easy now to trace an outline of India on the plates and then draw the arrow heads, the isobars, the isotherms and, indeed, whatever other lines it was necessary to draw on the gummed (roughened) plates. Printing ink gives very good results. Frequently, in the course of my own popular lectures, I have used these simple slides in preference to the photographic slides, not only because they do not cost any money, but also because they take less time to prepare than that taken in writing a letter to the professional maker to prepare the slides for you. The great advantage in using these slides for popular lectures is that it encourages scores among your listeners to prepare their own slides and illustrate their own lectures with them. Of course, for certain purposes, photographic slides cannot well be dispensed with.

Various other kinds of simple slides will also

suggest themselves to a teacher. Some of those I made for my own popular lectures were prepared in one or the other of the following ways. (The teacher will soon be able to judge for himself which method will be suitable in each particular case).

1. Trace with a fine pointed drawing pen (or otherwise) the plan, design or picture on a tracing paper. Then paste this tracing paper on the plate of glass. For most purposes pasting the corners only will do. If the glass plates are thin enough and good black ink has been used, the tracing paper with the design on it may be placed between two plates kept together by means of a piece of thin strong cotton string. For obvious reasons I would avoid using rubber bands. Very slightly oiling the tracing paper sometimes improves the picture.
2. By method No.1, even a picture in different colours can easily be made.
3. If the design is not a complicated one but can be drawn in lines, it may be cut straight out of the paper. The paper in this case will, of course, be thick brown paper, so that the light cannot readily pass through it. The design will then appear on the screen in bright light on a dark background.
4. In some cases I found it more convenient to cut out the design and paste it directly on a glass plate or place it between two glass plates.

I am sorry to notice that the 'magic lantern' for popular scientific instruction has to all intents and purposes gone out of use. Indeed, even the popular science lectures like those the Punjab Science Institute was the means of introducing in the province have become so few and far between that one seldom hears of them.

I will not stop to discuss the reasons for the prevailing indifference to the spread of popular scientific knowledge in our province. I say "our province" deliberately, because I am not in a position to speak about other parts of the country. As I have mentioned elsewhere, in 1885, while I was a student in the Presidency College at Calcutta, I attended some of the most inspiring popular lectures at Dr. Mahendra Lal's Institute. Mahendra Lal's Institution was, indeed, our own model in founding the Punjab Science Institute at Lahore immediately after my return from Calcutta. As I have already mentioned, the idea of establishing a society with the express purpose of popularising scientific knowledge had occurred to Professor J.C. Oman a few months earlier, but when on my return from Calcutta, I explained to him what I had myself seen of the popular lectures of Father Lafont of St. Xavier's College, he made up his mind not to lose any more time to give effect to what we had been only discussing before.

The Popular Lectures

I find it difficult to describe the interest and in fact, the

enthusiasm which the popular lectures of the Punjab Science Institute excited over the length and breath of the province including some of the native states as well as Quetta. From all sides there was a demand to us to send out lecturers and, in a very short time, it was even decided to charge a small fee, at the *muffassil* stations, to cover atleast part of the expenses incurred in sending out lecturers generally accompanied by a laboratory assistant and the necessary apparatus to illustrate the lecture. In the majority of cases the lectures delivered both at Lahore and the out-stations were illustrated by actual experiments, though 'magic lantern' lectures were not quite ruled out. I do not remember the fee being charged at the *muffassil* stations for lantern lectures, but after 1896, a fee ranging from 1 to 2 *annas* became a common feature of the popular lectures given in the *muffassil* even when the lecturer was a local man. As a rule, in such cases part of the apparatus and, very frequently, an assistant to manipulate the apparatus had to be sent out from the headquarters.

I need scarcely mention that in nine out of every ten cases, I was called upon to perform this duty of responding to the call. Apart from other circumstances, those were special reasons for my services being requisitioned for this purposes. For some years, specially between 1890 and 1898, that is till I became absorbed in the Dyal Singh Will Probate Case, I had delivered so many popular lectures at Lahore and at other stations in the Punjab, that I was never at a loss for a subject for my lecture or the appropriate apparatus with which to

illustrate it. A lecture that had created interest at one station was sure to be listened to with attention at other stations as well. Indeed, sometimes a definite request would be made to us for a particular lecture that had already been delivered at one place to be repeated at another place also. I had a large and rapidly widening circle of friends and pupils who would send me an insistent personal request to pay a visit to their station for a popular lecture. The influential parents of some of my students would now and again send me an invitation couched in such kind terms that it was not quite easy to decline it. I may mention an invitation that came to me from the Prime Minister of Kapurthala two of whose sons were at the time reading in the Intermediate classes of the Government College. This letter was supported by another high official of the State who was a personal friend of mine and a supporter of the Punjab Science Institute. I gave three public lectures at Kapurthala, all the expenses being borne by the State. Similarly, I gave at least two lectures at Patiala, one in Mandi and one in Bahawalpur, the last when I went to this state in my official capacity as Inspector of Schools. The lecture was given at the pressing request of a Sikh student of mine who held a high post in the state at this time. These lectures became popular and attracted such large promiscuous audiences that I still meet grey beards every now and again who remind me of having attended one or more of them when they were yet in their teens at a *muffassil* station. At a modest estimate I must have given something like five hundred such lectures.

Let not the reader be alarmed at this figure. For

years I gave in the compound of the Baoli Sahib at Lahore (near the golden mosque) a regular annual course of about 20 lectures in the Punjabi language. All the lectures were illustrated by easy experiments, often with simple apparatus which any one could make for himself. The large audiences consisted almost entirely of shopkeepers from the surrounding bazars with just a sprinkling of English knowing clerks in the offices. I consider these to have been the most successful popular lectures I ever gave. The fact that, week after week, they attracted a large number of shopkeepers at a time of the day when the householders are out for making their daily purchases was encouraging testimony, that they supplied a real want. The casual remarks of the shopkeepers sometimes supplied me with valuable hints for giving Punjabi names to well-known scientific apparatus. Once I overheard a shopkeeper, describing the electric plate machine as *Bijli da charkha*, a very apt and expressive name, I think, for the machine. Sometimes when I was at a loss to express myself, I would invite the audience to suggest a name or a word for which I was struggling. It was very seldom that I failed to receive a suggestion or two that solved my difficulty. Occasionally, a most appropriate, commonly used and easily understood word was forthcoming. Besides explaining and illustrating the simplest facts and principles of physics and chemistry, every year about ten lectures were devoted to common subjects as: *How does the telegraph wire speak*, *The common flame*, *The water Lahoris drank before 1880*, *Pure and impure air*, *The toys and their lessons*, *Soap making*, *Electroplating*, and *Electricity in the service of man* (a

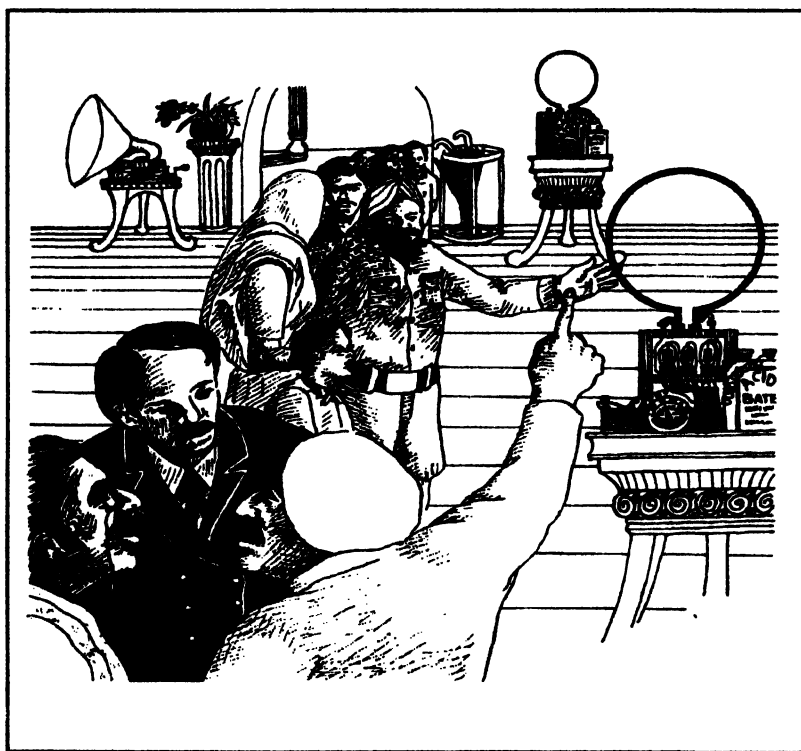
series of three or four lectures), *Glass Making, Punjab and its rivers* (illustrated by a large Relief Map made in clay under my direction for an educational exhibition at Lahore) and so on. I have mentioned these few titles of lectures actually delivered monthly in the Baoli Sahib simply as showing the sort of subjects that were selected for the popular lectures in the Baoli Sahib at Lahore. Several of those lectures, specially those of a little more advanced kind, were repeated at the *Muffassil* stations or in other places at Lahore. It will be no exaggeration to say that there was a real furore of enthusiasm created in the province about scientific studies. I wish here to state it as a fact which I took the trouble to verify by actual enquiries that there were more schools teaching science as a regular subject of studies and more scholars studying elementary physics and chemistry in the Punjab than in any other province of India.

One word more about these popular lectures. With a view to create widespread interest in scientific subjects as also to convey useful information to the public at large, now and again, I chose the more striking of the latest scientific discoveries as subjects for my popular lectures. They proved a success beyond my wildest expectation. Indeed, so great was the interest created by the public demonstrations with the newly discovered "X-Rays," "Edison's phonograph," and "The wireless telegraphy" that persistent demands came for the repetition of the lectures at the same place twice, thrice and oftener. All the expenses of these lectures



'The casual remarks of the shopkeepers sometimes supplied me with valuable hints for giving Punjabi names to well known scientific apparatus'.

were, as a rule, covered by the fees charged for them. The demonstration of the “wireless” was given in the original form of the Hertzian Electric Waves and the first experimental form of the iron and nickel filings coherer, but, even so, the popular interest it excited was wonderful. These were perhaps among the earliest experiments repeated in India. It may be of interest to mention that when a little while later Pandit Suraj Kaul—father of Raja Jaykishen Kaul, Dr. Balkishen Kaul, and Raja Sir Dayakishen Kaul, was awarded the title of “Raja” it was decided to give a public entertainment in his honour, the organisers, — (Sir) Pratul Chandra Chatterji and (Sir) Shadi Lal — asked me to give an exhibition with the newly discovered “Wireless” coherer on the occasion. Wireless signals between two points about 150 ft. apart from each other were transmitted and several skeptics moved across the path of the waves to see if there were any fine, carefully concealed wires through which the current was really passing. At the suggestion of some of the gentlemen present, Sir Macworth Young, the Lt. Governor, asked all the guests (300 to 400 in number) to crowd up between the sending and the receiving ‘stations’ to make sure that the Wireless waves passed through their bodies. Sir Macworth was himself so much interested in this and some other experiments which I showed, that he invited me specially to show the same experiments, on two occasions, to certain European guests, who were dining with him. The experiments were shown after the dinner was over.



At a public demonstration of scientific experiment

Punjabi as Vehicle of Scientific Ideas

One thing more I should like to mention here for the benefit of the skeptics who are never tired of opposing in the meeting of the University or outside all proposals for making the Punjabi and other vernaculars the medium of Collegiate instruction. At the Garden Party to which I have just referred I first explained to the assembled guests the benefits of the "Wireless" in English. But as there were some big *Raises* who did not know that language, His Honour asked me if I could explain the same thing in the vernacular. I agreed and repeated my explanation in the Punjabi language. When I had finished, His Honour turned round and asked Mr. Madan Gopal, M.A., Bar-at-Law, a leading lawyer of the time, if, in his opinion, I had succeeded in making myself clear to the old, conservative gentlemen. "Your Honour" replied Mr. Madan Gopal, "the fact is I myself have been able to understand it better in Punjabi, than when the explanation was given in English." Mr. Madan Gopal was not a Punjabi gentleman but hailed from Delhi.

Speaking of the Punjabi as a vehicle of scientific ideas, I may refer to a little incident which occurred to me in connection with one of my popular scientific lectures. At the close of a lecture at Rawalpindi, Sir Baba Khem Singh Bedi, who was present came up to me and told me that he had never believed before that it was possible to teach science through the medium of the Punjabi language. He pressed me to be his guest for two or three days and deliver a couple of more lectures

on popular science in his own garden. Baba Khem Singh was the religious head of the Sikh and as such, had a large following in the whole of Dhani Pathowar. At the two lectures I delivered under his own auspices, he took the chair himself. The audience consisted very largely of Sikhs from the villages, many of whom had been, I was told, specially invited for the purpose of listening to me.

The End of the Institute

In the light of what I have said about the popular interest created by the lectures of the Punjab Science Institute, it became quite easy for us to collect large funds for the association. We had invested part of the money in the purchase of scientific apparatus and of books for a scientific library and had, besides, about Rs. 3000 with us in cash when it was decided to close the Institute under circumstances to which I will refer presently. Our original plan was to build a Lecture Hall at Lahore and thus provide a permanent local habitation for the Institute. This was, however, not to be. In -----, some students of the Lahore Medical College started a small association under the name of the Society for the Promotion of Scientific Knowledge (S.P.S.K) practically with the same objects as the Punjab Science Institute. They induced Dr. C.C. Caleb to become a permanent President of the Society. By this time, Professor Oman had left India while I was absorbed, as I have already explained in serious and complicated litigation in connection with the Dyal Singh Will case which lasted for about ten years. Dr. C.C. Caleb and with him some other

influential workers of the Institute had transferred their interest to the new body. There was not room enough for two bodies with identical objects to work side by side.

At the Government College with Mr. A. S. Hemm now installed as the head of the Science Department certain practical difficulties, to which I need not refer, were also thrown in our way. Under these circumstances, it was decided to close the Institute and transfer the assets in the form of cash, books and apparatus to the youthful society under the leadership of Dr. C.C. Caleb, one of our own most active members. The fact that Dr. Caleb was at the head of a large scientific department made it easy for him to carry on the work of the Society for the Promotion of Scientific Knowledge.

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V

The Punjab Science Institute Workshop

I must now go back a good many years and give a brief account of the origin, the early difficulties and future successes of the Scientific Workshop which I established in 1888. It was in March 1887 that I joined the staff of the Lahore Government College. Very shortly afterwards Professor J.C. Oman left on a two-year furlough for England when the responsible work of taking all the classes in chemistry from the intermediate to the M.A. devolved upon me. I was also appointed Honorary Secretary of the Punjab Science Institute. My extensive contact with the management of popular lectures, my own and those of other gentlemen who were induced to come forward to take a share in the work, soon made it clear to me that no science teaching in the province was possible without the provision of ordinary facilities for the repairs of simple school apparatus. But there were no funds available for the foundation of even a small workshop. A further serious difficulty which long stood in our way was that I could not convince any of the other members of the Institute that, even if we could find the money for the establishment of a small workshop, it would be possible

for us to undertake the repairs of scientific instruments. All of us were overwhelmed in those days with strange apprehensions of the difficulties we would be courting by undertaking the repairs of scientific instruments, not to speak of manufacturing them from start to finish. It must be remembered in this connection that establishment of a workshop attached to science department of a college was a much later idea. Everybody threw cold water on my project. But somehow or other I had faith in myself and I was convinced that, after some failures, my labours would be rewarded with success. I am quite convinced in my own mind that the hard, very hard, experiences I had gone through in early life had filled me with courage and confidence to a degree to which my co-workers in the Institute had not qualified themselves in the school of adversity. At times I was myself assailed with serious doubts and misgivings about the success of the experiment. I was just starting life and had no spare money of my own and the only assets upon which I could bank at this time consisted of my faith that, somehow or other, if I persevered with my project, success would descend (as the Punjabi proverb says) "as rain from the skies even after piercing the roof over your head." Who says faith is blind? Certainly not the man of faith but only one who has never risked and has succeeded because he had no faith. Faith is not blind. The man of faith has a piercing vision. He sees things clearly in the distance which the others who have no faith cannot see. Truly has it been said: "Faith works wonders."

Allah Bakhsh -- the Head Mistri

As I had no money of my own to set up even a small workshop, and as the other members of the Institute opposed my "fantastic" project, I arranged with a *mistri* employed in the Railway Workshop to manufacture for me a few simple pieces of apparatus at his own house. This man, Allah Bakhsh, subsequently became the Head *Mistri* of my workshop. Allah Bakhsh was getting about Rs. 25 a month at the Railway Workshop to which he used to add about Rs. 10 a month by making keys, mending locks and doing other little odds and ends for the neighbours. For this purpose he had provided himself with a few ordinary tools and plants. There was also a simple charcoal furnace with a single goatskin bellows. This was early in 1888. I used to spend about 4 hours every day — 8 P.M. to midnight — at the house of *Mistri* Allah Bakhsh. All my own preparation for my class work was made in the morning. With the popular lectures in connection with the Science Institute, long hours of attendance at the house of Allah Bakhsh to supervise my new 'baby workshop' and my own official duties, never in my life have I harder worked as during the year 1888, when I was supposed to be busy 'making scientific instruments.' That was the joke of my friends of the Institute. But taunts and jokes apart, in very truth I was at this time laying the foundations of the future scientific and technical workshop which achieved, as I will explain later on, a no mean reputation. The few simple things I made at the house of Allah Bakhsh were sold to schools at cost price or even less. The cost price, of course, took no



Punjab Science Institute Workshop - An artist's imagination

account of the long hours of my own supervision. I was simply repaid for my labour by the joy of making them. Allah Bakhsh's house was situated at the far end of a long narrow lane, the very thought of which now fills me with a shudder, but I was so mad after my hobby that it was a delight to me to walk through a lane that would hardly allow two persons to pass abreast, and spend hours together sitting in the small courtyard of a dirty, dingy house.

A year passed in this way. Both Allah Bakhsh and myself were satisfied with our outturn of 'scientific apparatus.' If I were to mention what things exactly we were able to make, it might rain a laughter. But we must not judge of what we could make in the year 1888 by what we can make in the year of grace 1942. The important thing was that Allah Bakhsh and myself began to understand each other. He was convinced that I was in dead earnest about my scheme of setting up a workshop for the repairs of all kinds of apparatus and the manufacture of simpler kinds of it. When at the end of about a year's experimental work, I proposed to transfer the workshop to my own house then situated near Raja Nau Nihal Singh's *haveli*, with Allah Bakhsh as a whole time *mistri* on Rs. 45 a month, he was quite pleased with the offer, but he would not give up his permanent job at the Railway Workshop for what might, after all, prove to be not more than a few months engagement. Eventually I succeeded in overcoming his doubts and fears by giving him a stamped agreement guaranteeing him at least two years appointment, which,

considering the salary I was offering him, really meant nearly four years of his Railway Workshop's pay assured. As it was, Allah Bakhsh remained at the head of my workshop till actually the last day of his life. During the closing six or seven months of his serious illness, he was paid his monthly salary of Rs. 60 in full. On his death a pension was allowed to his widow, but after drawing it for few months she married another man and forfeited her right to further payment from the funds of my workshop.

When Allah Bakhsh started the workshop at my own house he was the only workman with a couple of unskilled labourers, but by and by as the work increased, he trained more men. He was very reluctant to engage new grown-up men. He preferred to take boys of 12 to 15 years of age whom he would train himself and who would, therefore, be not only attached to him but who would be fully conversant with the elementary principles of science which he had himself picked up during his intimate contact with me while he worked at his own house and in after years. My own experience also shown that Allah Bakhsh was quite right in admitting, as far as possible, young boys to the workshop in preference to grown up men whose habits were already formed and whom it was by no means easy to train to new ways of work. I have known boys of 20 years of age who had been six or seven years in our workshop under Allah Bakhsh and who had risen from a monthly salary of Rs. 10 or 15 to Rs. 35 or 40 being appointed to posts of Rs. 150 to 200 at once by Balmer Lawrie & Co., Calcutta, or

the North-Western Railway in their own province. I have known two of my men so employed in testing and mending electric fans and doing other odds and ends requiring some intelligence and skill. Small boys placed under competent supervision can easily be trained to make electric fans and motor engines from beginning to end. Of course, the man in supreme charge of the Department should not only be thoroughly competent, but also be keen to train the men under him, each in his own branch of the work. Mass production is not difficult. Its one main pre-condition of success is mass-consumption.

Lock and Safes Department

After I had appointed Allah Bakhsh as a whole timer and started a regular workshop with an outlay capital of not more than Rs. 1500 or so, representing all the savings from my own salary as Professor at the Government College, the operations expanded by leaps and bounds. At first even the brass casting and all the turning was done on the piece work system outside the workshop. But, curiously, as the work expanded the piece work became more and more troublesome. The men demanded higher rates of payment. Sometimes they asked for rates that it was impossible for us to pay. A casting department on a small-scale was added to the workshop. As there was not work enough for all the men I had been compelled to engage, I allowed the Head *Mistri* to take outside work. After some years, a department for the manufacture of locks was also started as a side line, the chief object being to keep the increasing number of

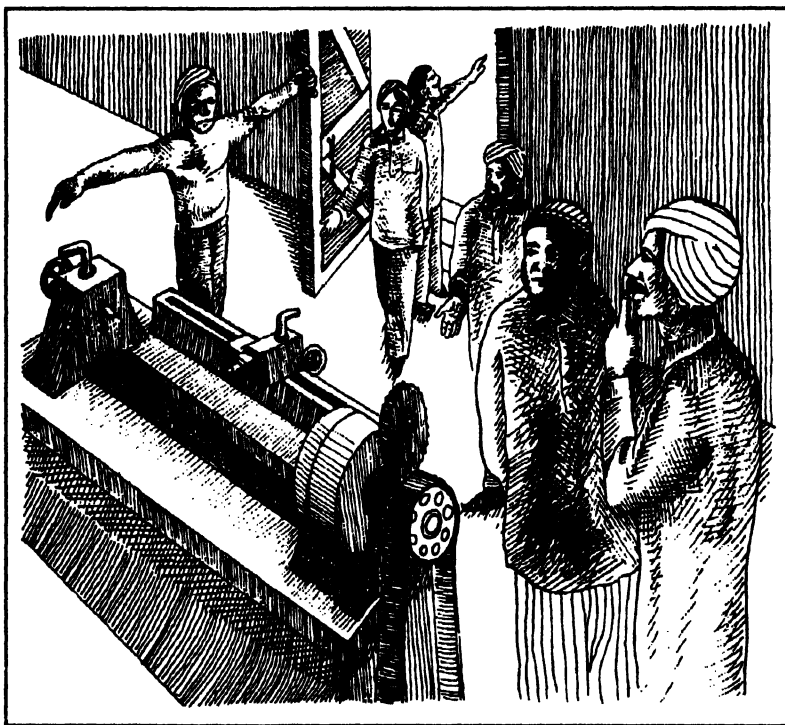
our trained men occupied for half-the-day with lock-making. As my means did not allow me to undertake the responsibility of paying the salaries of such a large number of men, month after month, the lock-making department, or rather the "Lock and Safes" department, as it soon came to be called, was placed on a piece work basis. I and my chief *mistri* spent about a month together in discussing and devising, designing and experimenting with different kinds of locks and keys. Eventually we turned out a particular type — or rather two types — of locks to which no other key would fit and which could only be opened "broken open." The keys were all made by the Head *Mistri* and kept in my own personal possession. Two keys were supplied with each lock. All the locks were made at our own workshop under my own personal supervision and the direct supervision of the Head *Mistri*. I will not go into the system but as I have already mentioned, the locks were made by a few of the men working during half the time on the piece or contract system. With the exception of the keys, we paid the men Rs. 1 for the locks (one type). Every *piece* of each lock was examined by myself and the Head *Mistri* jointly. The keys were made by the Head *Mistri* and tested by us both. What tests were applied need not be mentioned. So quickly did the demand grow that within a short time we began to make a net profit of Rs. 100 a month from this department. The success of the scientific department of the Workshop was now assured, because, although lock making was no part of my original business, my ambition being confined to the repairs and manufacture of scientific instruments, I had

now discovered a source of regular monthly income upon which I could fall back in case the scientific department did not quite pay its way. After a year or two I had a windfall in the shape of an utterly unexpected 'gift' of Rs. 3,000 from 'Luck' herself, which convinced me once for all that, come what may, the workshop was going to be an unqualified success. The Locks Department was closed after sometime under brotherly pressure from R.B. Labdha Ram, Rai Mul Raj and some other gentlemen who wanted to start the manufacture of the same on a large-scale for which they had, I was assured, already subscribed liberally. The new "Locks Workshop" was actually established and was in working order for three or four years, but for want of proper supervision, inferior stuff began to be produced with the result that the locks of the company lost their reputation and the concern had to be closed with a heavy loss.

The Lathe

To show that success follows like a shadow the footsteps of a man who has faith in himself and in his cause, I must stop to refer, in some detail, to an incident which tried all my patience and which threatened at that early stage almost to nip my cherished venture in the bud. I have said that, in the beginning, I got part of my work done on the contract system outside the workshop. The workshop did not possess such a necessary outfit as a lathe, simply because I could not afford at the time to purchase one. There were only a couple of men in the city who had lathes of their own, and I had arranged with one of them to do all my metal turning on the contract

system. But as my work began to expand, instead of reducing his charges, he became increasingly truculent, and the more I yielded, the more exorbitant became his demands. The other man said that he would only undertake to do my work if I purchased his lathe at an unreasonable price which was, moreover, beyond my means. I tried every method to bring the men to a reasonable frame of mind, but failed. Both my *mistri* and myself were at our wits' ends and we did not know how to get out of the scrape. Even if I should find the money for a new lathe by borrowing from a Bank, would the machine be suitable for my work? Without personal experience of a lathe, would it be safe to negotiate with a Calcutta or a Bombay firm? It was more likely than not that they would not be able to supply me with a lathe according to my specifications from their stock. Very probably they would register my order and ask me to wait three or four months till the machine arrived from England. The two men at Lahore who had lathes of their own probably knew all the difficulties with which I was confronted or they would have thought many times before they assumed such an unreasonable attitude as they did. In a mood of utter despair, I one day asked *Mistri* Allah Bakhsh, supposing somehow I purchase a lathe, shall we be able to find a good turner besides the two men who had machines of their own. It would have been foolish on my part to employ one of these men in my workshop; they would not only have been a source of trouble to me, but they would also have encouraged some other of my men to acts of indiscipline. Allah Bakhsh said he knew three or four men who were fairly well trained turners. I asked



'They were thunderstruck to see the lathe fixed up'

him to send for them one by one. As they appeared before me, after a few preliminary enquiries I put one question to each of them. I asked them if they knew of a second hand lathe that was available, promising to employ the man on a decent salary who should help me to find me one at early date. Now it so happened, such things happen only to a man who deserves success — that there was a good lathe available at Kusur which the owner was anxious to part with at a fair price. I jumped at the idea. Luckily the man who gave me this information was out of employment and in search of a job. He was not only a trained turner but could lend a hand at fitting work as well. I at once fixed his monthly salary with him on the condition that the lathe was purchased.

I began to see light where for a month or more there had existed darkness and despair before me. My workshop may yet be saved from a collapse! On the first holiday, I and my new turner started for Ferozepur 16 miles beyond Kusur. I had some good friends there. I asked one of them to send with me someone who might know the owner of the lathe at Kusur. Everything went wonderfully well. Within an hour or two, a watch-maker was placed at my disposal who knew the Kusur man very well and who could help me in arranging the bargain. We left for Kusur immediately. The owner of the lathe knew me and had even been to my workshop at Lahore to get some parts of a machine made by my *mistri*. As he was keen to sell the machine, he placed the original bill for it before me. It had cost him something in the neighbourhood of a thousand rupees. He had used it for

not more than two or three years . It was fixed up at the time with pulleys, brackets and all and my own turner saw that it was in good working order. Most important of all, the price he demanded was Rs. 350. Nothing could be more welcome to me. He left no room to me for higgling and haggling. The price was reasonable and within my means. I gave him a cheque there and then which he was glad to accept. Being now the owner of a good working lathe myself with all the fixtures down to the last nail, I did not like to wait an hour. My joy might well be imagined as I stood there watching the machine and the fixtures being taken down and loaded into a cart bound for the railway station. I was so happy-with my valuable possession that I decided to take it with me in the passenger train to Lahore. The train reached Lahore at about 10 P.M. as soon as the lathe and the two or three boxes of tools and fixtures were taken down I sent my turner to fetch a bullock cart. I was impatient to carry the lathe home and see it fixed in my workshop. Promising the turner a day's holiday as his additional reward, I induced him to fix up the lathe with the help of my own private servants. By 2 A.M. everything was shipshape and I had the satisfaction of even seeing one of the barrels of an air-pump – the very apparatus which had been the root of the whole trouble with my old turner in the city—fixed up on the lathe and the first scraping actually begun.

Next morning when the doors to the workshop were thrown open and the workmen, only about half-a-dozen in all, entered the big room, they were thunder-struck to see the lathe fixed up in working trim; how could

it have come there. When could it have been transported to the workshop and fixed up as if it had long been in use where it stood. When they left the workshop the previous evening, there was no trace of it, and now, well, they saw what some of them called a miracle performed before their very eyes. The news of it soon reached the two lathe owners and, indeed, the whole *Mochi Gate Quarters* where most of the Railway Workshop men and other skilled artisans lived. It is needless to add that I had no more trouble with any of the workmen. Indeed, both the lathe owners begged my *Mistri* not to undertake private turning work in competition with them.

Repairs of Delicate Apparatus

By the middle of the summer of 1889, Professor Oman had returned from his furlough. He did not quite like the idea of my having started the workshop during his absence. He insisted that our operations should be strictly limited to the repairs of school apparatus. I considered it prudent to slow down my pace, but the difficulty was that there was not enough repairing work to be done and, if a workshop was to be maintained, at least the simpler kinds of scientific apparatus had to be turned out on the spot to find work for even the small number of artisans I had on my establishment. I could easily have obtained enough private work on remunerative payment, but then my workshop would have lost the character of a scientific institution, and, for more reasons than one, such a thought I was determined to brush out of my mind.

With our daily widening experience, we were able to undertake the repairs of more complicated apparatus. The popular lectures to which I have referred at some length spread the reputation of my workshop to all parts of the province and even some of the P. W. D. Officers began to extend their patronage to us by sending instruments like the theodolites, prismatic compass etc., to our workshop for repairs. The new opportunities for overhauling and examining the working of delicate instruments of all kinds and sorts created self-confidence in my mistries. This, in turn, made them bolder to undertake the manufacture of more advanced school and college apparatus.

My Contact with Hira Lal of the Central Province

By the beginning of the closing decade of the last century, my workshop had, despite all my self-restraint, developed into a small but well-appointed institution, both as regards the appliances and the workmen, for the manufacture of a decent set of scientific apparatus. Our progress surprised everybody, myself most of all. Most encouraging help came from unexpected quarters. Meeting with considerable difficulties in purchasing, in the local market, brass, zinc and other metal plates as well as brass and copper wires of suitable thicknesses for my purpose, I decided to pay a visit to Bombay during my summer vacation. I had somehow or other saved about a thousand rupees. In the hope of being able to buy something that might cover at least part of my travelling expenses, I took the whole of my 'Capital' with me.

Arrived at my destination, I found luck escorting me at every turn of the streets of the commercial metropolis. I had paid several visits to Bombay before this time, but never on a business of this kind. After making my purchases of the few articles that had prompted me to undertake my present trip, I paid a visit to a local English firm that *inter alia*, dealt in scientific apparatus. My workshop had placed a small order for some glass tubings, rods etc., and I thought I would take these to Lahore with myself. The shop assistant whom I approached did not know about my requisition. He took out a big book in which all orders for scientific apparatus were registered. As he slowly turned over the pages of this to me, I noticed an order for a Tate's Air Pump registered from Mr. Hira Lal, Science Instructor, Hoshangabad, Central Province. This was a valuable bit of information for me. As soon as I had finished my own business with the English firm, I returned to my residence to post my own small catalogue to Mr. Hira Lal along with a long letter. In this epistle, I gave a brief history of the Punjab Science Institute and the Scientific Workshop which I had lately established at Lahore in connection with it. Referring to his requisition of an Air Pump, I informed him that I would be glad to send one to him along with any other apparatus that he might require. I added that we were willing to send him everything on approval and that the apparatus could be returned to us, if need be, at our own expense. Our catalogue prices were about half of those shown in the catalogues of British firms. With an offer of such liberal terms and conditions, there would be only one kind of response from an Indian customer. On my return to Lahore, I found a very

encouraging letter waiting for me. Needless to say that we long enjoyed the patronage of Mr. Hira Lal which meant Practically the whole of the Central Province. Mr. Hira Lal was periplectic Instructor for the Central Province Schools being sometime in one District and, again, in another district. He was a very able and enterprising gentleman, as will become evident from the fact that he rose to be an officiating Deputy Commissioner in his own province. I met him several times in subsequent years and as good friends we long corresponded with each other.

Luck's own Handsome Gift to the Workshop

I have yet to mention another incident at Bombay when, under very strange circumstances, luck threw a present of no less than three thousand rupees into my lap. It is an old habit with me that when I go to a new place, I reserve a day or two, if possible, for rambling through the streets at random. In a big city like Bombay, after finishing my own particular business, I have often felt myself overcome by a sort of passion for aimless tramping from early morning till late at night. Regular meals were, of course, out of question. On such occasions, I take delight in contenting myself with whatever I can get and wherever I can get it. I would sometimes walk in to a wayside Armenian restaurant, and ask for a cup of tea with a piece of cake or a couple of eggs with bread and butter. If I feel so inclined, I would have a fowl roasted and dispose off the whole of it.

Now, it was on one of these tramping days when it

was raining hard that I saw a promiscuous crowd of people inside a shop. Looking in more for the sake of taking shelter from the drenching rain outside than for making any purchases, I noticed that a public auction was going on. A firm of scientific instruments had gone into liquidation and its stock-in-trade was being disposed off to the highest bidders. A Parsi auctioneer was holding three metal cups shining like white silver and shouting out the last bid: "Four rupees! Four rupees! Any more bid! "Four rupees!" Advancing towards the man, I asked him if I could have a look at them. As soon as I saw the shape and the colour and felt the elasticity of the cups, I knew at once what they were. Only a fool could make a mistake about them. I returned the cups and, at the same time, I gave my bid for six rupees. A man standing next to me was surprised at this sudden jump and told me in low voice: "If you think they are made of silver, you are mistaken." "No," said I, "they are not made of silver but of gold." The auctioneer demanded a cash deposit before he would accept my bid. I pulled out seven one hundred rupee notes from an inner waist coat pocket and handing over one of them to him, I said: "Keep this, I may buy some more things also." I heard several persons round about me expressing surprise at my manner and, when I told them that I was going to spend all the money I had with me in Bombay, I could hear a titter of "a mad man," "a mad man," among the people near about me. This was a turning point in my favour. No one would bid against "a mad man." The three platinum crucibles — for such in fact they were — were knocked down in my name for Rs. 6. I secured them in my waist-coat pocket. One lot of all sorts of scientific apparatus

followed. These included about 20 platinum plates for Grove's battery cells, three or four Wimsburt's machines, and a huge lot of carbon plates, lot of cotton and silk covered insulated wire, some electric bells with batteries etc. It will be profitless to give a long catalogue of all the things that were put to auction on that rainy morning. Never has my ramble been better spent. All or most of the lots were knocked down in my name for a total sum of Rs. 124. I had everything safely packed in my own presence (with the exception of the platinum articles) and saw them despatched by railway to my Lahore address.

On my return home, I disposed off most of things, with the exception of the platinums, the insulated wires and the carbon plates, at about half the English prices. Most of the platinum plates and the crucibles I sold at about 75 per cent the market price. At a modest estimate I made a net profit of at least Rs.3,000 out of "a mad man's" bargain. The whole of this money was credited to the workshop funds and went to swell the initial working capital of the institution. I have only to mention that encouraged by the handsome gift which luck presented to me at Bombay, I invested the balance of my seven hundred rupees in the purchase of vices, bigger fire clay crucibles than any we had dared to use before, and other necessities required for expanding my Workshop out of it.

'Master' Pyare Lal — Inspector of Schools

The financial position of the workshop was now assured. Such a big windfall was not without a purpose. I sent

presents of some of the simpler apparatus costing not more than Rs.7 each to some of the schools. A couple of hundred rupees were spent in this manner. I also sent a circular letter to all the Inspectors of Schools informing them of the satisfactory progress of the workshop and offering to send them a dozen selected pieces of apparatus made by ourselves with a competent *mistri* who would show the working of all the instruments. My object in taking this step was obviously to interest these officers in our enterprise in the hope that, if satisfied with the products of the workshop, they would instruct the schools under their charge to extend their patronage to us. No reply, not even an acknowledgement, came from four out of the five senior Inspectors in the province. The fifth gentleman, the only Indian Inspector of Schools in the province, 'Master' Pyare Lal, Inspector of Schools, Jullundhar Circle, wrote to say that he had been hearing of the success of the Institute and, that he would certainly avail himself of the opportunity of seeing a set of the apparatus made at Lahore, but that, for this purpose, he would not put us to the trouble and expense of sending the instruments to Jullundhar. He would be glad to pay visit to the workshop and see the apparatus in the actual process of manufacture at a very early date. After sometime I received an intimation from him informing me that he would be paying a brief visit to Lahore and staying with his younger brother, Mr. Madan Gopal, Bar-at-Law, on certain specified dates. At an appointed time, I called on him and brought him with me to the workshop. He spent about three hours at the workshop, seeing everything with his own eyes and

making minute enquiries about various matters. I wish here to record my deep sense of gratitude to him for the interest he showed ever since his visit in the progress of the workshop. It will be the simple truth to say that, but for the encouragement we received from Master Pyare Lal and Mr. Hira Lal in those early days, the success of the workshop would have been slow, pitiful and uncertain. One high placed European gentleman even happened to blurt out the opinion that he would not cut the throat of his own people by encouraging an industrial undertaking like the workshop. He seemed to regret the remark afterwards because he tried to explain himself away. The Head of the Department of Instruction, however, officially expressed his gratification that the workshop was providing facilities for the teaching of science subjects to the schools in the province.

Industrial Conference at Poona

About this time, a most gratifying testimony was forthcoming from perfectly independent sources and under circumstances that at first seemed to be anything but cheerful, that the products of our little workshop could compare favourably with those imported from abroad. In the summer of 1893, when my pet child was hardly five years old, I received an invitation from my friend Mr. Madhavrao Namjoshi²³ of Poona to attend an industrial conference that was being held there during the ensuing autumn. Mr. Namjoshi was a well-known public worker in the cause of the industrial advancement of the country and, quite fittingly, he himself had been selected by the organisers of the conference to act as

Honorary Secretary. I believe he had also got up a small exhibition of Maharashtra products. An opportunity like this for bringing my workshop to the notice of a wider public specially interested in new industrial undertakings was not to be missed. The dates of the Conference suited me perfectly. I accepted the invitation, and arrived at Poona accompanied by my Head *Mistri* who was put in charge of several boxes of scientific instruments made by us at Lahore.

Mr. Namjoshi had kindly made arrangements to accommodate me at his own house, but an interesting incident took place on the opening day which deserves a passing reference. Mahadeo Govind Ranade arrived at the Conference while the proceedings were in full swing. He occupied a chair



M. G. Ranade

just opposite to my own seat with a passage five or six feet wide between us. I bowed my respects to him. As soon as he noticed me, he got up from his chair, walked across the open space that separated us, and coming up to me embraced me to his bosom as if he had met a long lost child and, without speaking a word to me, said: "Gentlemen, let me introduce to you my friend, the *Lahorewala*." I do not know if he had forgotten my name at the moment. I myself do not believe so, it is more probable that he used the unconventional word, *Lahorewala* as a term of

endearment. The point to which I wish to draw the special attention of the readers here is the liberty Ranade took in interrupting the regular proceedings of the Conference for a trivial matter like the introduction of someone whom he noticed at the meeting. Unconventional behaviour of this sort was characteristic of Ranade. It came naturally to him. If there was any one who did not care for the conventions of society it was the Grand Old Man of Poona. The universal respect, or rather reverence, with which he was received wherever he appeared, made it even graceful in him as being essential part of his patriarchal attitude towards his people. At the close of the morning's proceedings, he simply asked Namjoshi to have my things sent over to his house. There was no question of making a request to him. Thus it was that I had the honour of living for five or six days under Ranade's roof, a privilege which I also enjoyed more than once during the remaining seven years of the great savant-statesman's life.

I should not like to pass on to the Conference without saying a few words about what I saw of Ranade. I can only refer here to one or two things that particularly interested me. He used to have long morning walks. Of course, I enjoyed the privilege of accompanying him. On the way he would pick up a friend here and there — not always the same man. In spite of what I had known of his unconventional habits and ways, I was much amused to hear Ranade shouting out from the middle of the street at the top of his voice to a friend—may be some honourable member of the Governor's Council—whom he wanted to accompany him in his morning stroll. To a Punjabi—my province is known to attach more importance

to small outward appearances than any other part of India— this and some other things I noticed were novel experiences. Both at Simla and Lahore, I had myself seen Ranade in situations of characteristic simplicity, while a friend once told me that he had seen him driving in an *ekka* at Lahore. Only Ranade could be expected to do these things. The impression made upon my mind has endured more than half-a-century and is as fresh and strong as ever.

On the way, Ranade was the chief talker and much of his time was taken up with pointing out to me hills, houses and places of historical interest, specially those associated with the exploits of Shivaji ²⁴ and other incidents of the old days of Maratha greatness. Seeing how graphically and impressively he described them, I ventured to suggest that he should write a History of Maharashtra. He made some non-possumus remark. Little did I know at the time that Ranade had already taken the work in hand.

About the conference itself I need not say anything except that, as was to be expected, some of the papers read on the occasion were as illuminating as they were practical. But what about my own exhibits. They remained on view on the tables throughout the Conference. At Mr. Namjoshi's suggestion, the Conference appointed a small committee of three men to examine the apparatus and make a report on them. To my surprise a confidential report was made. What was it? Either those whom I put this question did not know themselves, for reasons of

their own, or they did not wish to tell me what it was like. At last my friend Mr. Namjoshi took me into his confidence. From the point of view of the reporting committee, it was as damaging to me personally and to the reputation of the Workshop as it could possibly be. As I shall show presently, from my own point of view, the Committee could not possibly have made a more flattering report than they did. I got the permission of the President to speak for ten minutes about my workshop with special reference to the instruments that were exhibited on the Conference tables. I broke the seal of secrecy that had been deliberately put upon the report of the Committee out of a delicate regard for my feelings. I spoke frankly, and even bluntly, as the occasion required. I said that through the courtesy of the Secretary, I had come to know something about the report on my apparatus. The substance of it was that the Committee *did not believe that the apparatus could have been made at Lahore* or anywhere else in India. They were even more explicit in their charge; they were convinced, they said, that the instruments exhibited on the tables were really made in England and that all that my Workshop had done as to remove the old fine varnish and replace it by crude varnish of their own so as to give it the appearance of an Indian origin, and the proof of it was the further fact that, with all their own resources of skill and appliances in Bombay and elsewhere, they themselves could not turn out similar articles. I said that as I interpreted the Report of the Committee, I considered that the Committee could not possibly have made it more flattering to us. For it meant two things and two things only:

Firstly, that but for the varnishing not a very material factor — my apparatus *stood on a par with the imported British made apparatus in respect of the actual working*. Only in our case the varnishing was not as good as it might have been.

In the second place, the Report showed that we had been able to achieve a success that was admittedly beyond all the resources of the more advanced presidency of Bombay.

In order to convince that the apparatus was really made at Lahore under my personal supervision, I made them three alternative offers:

- i) That the Conference could depute *any number of men* to visit the workshop at Lahore to see the apparatus in the actual process of manufacture and that, if they were not satisfied with the claim that the exhibits they saw before them were made at Lahore, the workshop would be responsible for the payment to them of second class fare for both journeys.
- ii) That they could place a large order for any of the apparatus with the workshop. As the prices we charged were about half of the English prices, they would be gainers by the bargain *at our expense*. Only a fool would consent to purchase an article for ten rupees and offer it for sale at half-the-cost price, and if a knave did make an offer of that kind for his own purpose only, fools would not take advantage of it.

iii) The last alternative which I offered to them was that I would leave my head *mistri* at Poona or anywhere else where he could be provided with the necessary facilities for the manufacture of the apparatus. He would then make any of the articles they liked under their own eyes. All that they need guarantee in return was the salary of the *mistri* for the time, not exceeding a month, that he was away from Lahore.

Words fail me to describe the loud applause which followed as I sat down. Professor Modak of Baroda, who was I believe, president of the reporting committee, came forward and embraced me. From Baroda he also sent me a copy of his book on intermediate Physics in Marathi language as a mark of his friendship. The subsequent history of the workshop was a record of continued progress. Perhaps that is not the proper word except in a merely business sense. No conspicuous departure was made from the hum-drum routine of the manufacture and sale of apparatus. The business side of the workshop, however, expanded steadily from year to year. Our output increased, our sales mounted up and the reputation of the workshop spread to the neighbouring provinces and we received some orders even from the most distant parts of the country. When some years later, an industrial exhibition became a regular adjunct of the annual sessions for the Indian National Congress, exhibits from our Workshop attracted particular notice and were recommended by the judging Committees for the award of gold or silver medals. It goes without saying

that the Committee of judges always included eminent men of science belonging to the province where the exhibition of the year was held. At the Calcutta Exhibition of 1906, for instance, Sir Jagadish Chandra Bose was on the Committee of judges for the Department of Scientific



J.C. Bose

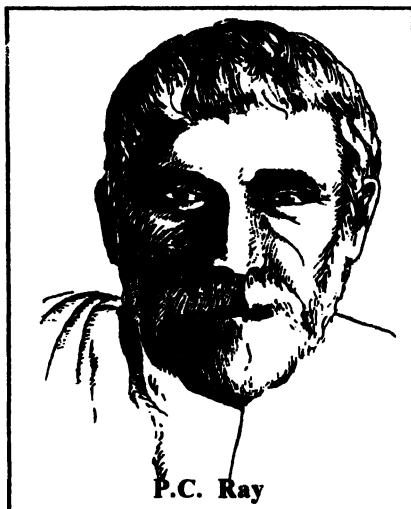
Exhibits. He spoke in very flattering terms of our contribution to the exhibition. At Calcutta as at many other places our workshop was awarded a Gold Medal. With the passage of time and the increasing encouragement from the public, the quality of our apparatus improved. We made more advanced and more delicate pieces of

apparatus such as resistance boxes, chemical balances and the like. In point of accuracy of measurements these instruments compared favourably with most of the imported articles. It was no disparagement to the workshop that we could not come anywhere near the best instruments used for research work. But even for such of the delicate instruments as we were able to produce the demand was very limited, so much so that we found it difficult to make suitable arrangements for the calibration and reliable testing of the instruments. If I were free from my official and other pre-occupations, I could possibly have secured a few more orders by personal visits to other provinces. In the then existing conditions of the country

it was not easy to inspire confidence simply by carrying on correspondence with gentlemen whom one may never have met. My previous experience at Poona was no less a warning against too much optimism than an encouragement.

My Visit to Sulphuric Acid Plants at Calcutta

Towards the close of the century, certain circumstances of my official life, led me to think of chucking up Government Service and devoting myself to an industrial career. The scientific workshop, of course, formed a part, though not the major part, of my programme. The establishment of a big chemical factory at



Lahore was the pivotal idea of the new project. With this object in view, I spent a part of my summer vacation in 1898 in making a practical study of the different aspects of the problem. Apart from other steps that I took, I paid a visit to Calcutta and explained the whole position to Dr. (now Sir) P.C. Ray. As sulphuric acid is the first thing one has to think of in connection with a chemical factory, I pressed my friend to show me some factories for the manufacture of the acid. There were several such establishments known

to Dr. Ray, but he said they would not admit an upcountryman. His own visits did not excite any suspicions as he was well-known to the people there as a Professor of Chemistry and a customer. He was, besides, sometime approached by them for advice in their difficulties. Dr. Ray's objection in my case was, however, easily overcome. I agreed to accompany him in black Bengali slippers, a *dhoti* and a shirt—without head-dress of any sort or kind. The new sartorial outfit served our purpose admirably. We visited two moderate sized sulphuric acid factories where I saw all the practical details of the process. Dr. P.C. Ray also placed an order for 30 or 40 jars of the acid. These were meant for me and I had them despatched subsequently to Lahore. While at Calcutta I also had occasion to study the practical working of certain other factories—the manufacture of chemical fertilisers being one of them.

Despite all these preparations, however, nothing came out of my efforts to turn a new leaf and become a chemical industrialist*. I am not a fatalist but I am bound to say that, considering everything I did to shake myself off from the uncomfortable position in which my official supersession had now left me, only some powerful hidden hand could have come in my way and dashed the cup from my lips.

To return to the story of my workshop. Welcome as the success of the business side of the concern was, I was not quite happy that for so many years no new department

* Ruchi Ram did establish a Sulphuric acid plant which flourished for several years—Eds.

had been built up. I was particularly keen to fit up my workshop with up to-date appliances for grinding lenses and then to add a department for the manufacture of binoculars, student's microscopes and the like for which a fairly large demand had by this time grown up. I was not satisfied with the replies I received to my enquiries. For this and other reasons, nothing could be done till early in 1914 when I decided to proceed to Germany for research work in radioactivity. I took a large sum of money with me for the purchase of the necessary appliances with the help and advice of some competent persons. But as if ill-luck was dogging my feet, the war (First World War) broke out and after spending about a year in England so far as my workshop was concerned, I had to return home as empty-handed as I had gone.

* * *

VI

My Public Activities

Judged by the present day standard, there was little about public life before the Indian National Congress came into existence (December, 1885).

The only organisation worth mentioning that existed at the time in Punjab was a branch of the 'Indian Association of Calcutta'. Surendranath Bannerjea's or Sir Syed Ahmad's occasional visits to Punjab stirred up a great deal of public interest but it was shortlived and did not leave much tangible effect behind. In these circumstances, as we, college students, belonged to the first generation of English knowing Punjabis, we were often spoken of as the 'hopes' of the country. On our own part, we were also led to think that we should try to deserve at least a little of the nice things that were said about us.

Local Self-Government

The first public activity in which I remember to have taken an active part was the agitation all over the province in connection with Lord Ripon's Local Self-Government Resolution.²⁵ It is impossible for me to describe the excitement that was created by an announcement of what will now be called a simple reform. In 1882, however,

when the resolution was first passed by Lord Ripon's Government it gave rise to wild excitement from one end of the province to the other.

The little incident which came under my own observation will suffice to show how extremely disturbed the social and political atmosphere of the province became. I was then living in the College Boarding House at 47 Court Street, quite close to the Office of the *Civil & Military Gazette* which had been established only a few years earlier at Lahore. One day, as I came out of my hostel, one of the editorial staff of the *Gazette* joined me and began to walk side by side with me. For a considerable distance when he thus kept company with me, he would, again and again, look at me and shout out: "Local slough," "Local slough," making hideous faces at me and spitting repeatedly on the ground. It was sometime afterwards that I fully realised how important the Ripon's new Resolution was as providing the necessary preliminary training for us in modern citizenship and laying the foundation for representative government. We read the discussions in the *Civil & Military Gazette* on the one side and the *Tribune* on the other. The two vernacular papers – the *Kohinoor* and the *Aftab-i-Punjab* were considered of no account.

We also attended the public meetings in support of the Resolution. We also held our own meeting in the Boarding House at which we resolved to go round to the nearby towns and villages in our own centres during the summer vacation that was close at *hand and address*

public meetings explaining the objects and importance of the reform. This was the first time that I took active interest in a public movement of any kind.* During the vacation when I went to my native town, Bhera, I got together three or four meetings, mostly of shopkeepers along with a few school teachers, and set out to them, as well as I could, the aims and objects of the new reform and what good it was going to do to the people. I also went round to some of the villages in the neighbourhood and addressed similar meetings. It was a novel experience both for me and my audiences.

The Idol Contempt Case

Early in 1883 a case then pending in the Calcutta High Court gave rise to veritable storm of popular indignation which upset the whole of Bengal and, indeed, the repercussion of it were soon felt from end to end of India. This was known as the Idol Contempt Case. In that case, Mr. Justice Norris had the impudence of sending for a Hindu Idol for identification in Court. *The Brahmo Public Opinion*, a weekly paper edited by Mr. Bhubon Das, father of Deshbandhu C.R. Das,²⁶ commented strongly on the conduct of justice Norris. Mr. Surendranath Bannerjea²⁷ took up the question with his characteristic enthusiasm and wrote strongly in his own paper, the *Bengali*. He was at once placed on trial for

* I do not attach much importance to my little part in the Census operation of a few months earlier (Feb. 1881), as in that case we took up the work under the instructions of our Professors.

Contempt of Court. His Counsel, Mr. W.C. Bonnerjee,²⁸ offered to apologise for his client but the apology was not accepted and the distinguished leader of 'Young India' was sentenced to simple imprisonment for two months.

The incident gave rise to a universal outburst of grief and indignation, the echoes of which were soon heard all over the country.

Public meetings were held in every part of India. Popular as Mr. Surendranath Bannerjea was with the people of India in general, he was looked upon as their idol by the youth of the country. It was, therefore, in the fitness of things that college students everywhere should hold demonstration of protest against the severe judgement of Justice Norris.

Shortly after Mr. Bannerjea was sentenced, a letter was handed to me addressed to the B.A. students, Government College, Lahore. On opening it, I found it was an appeal to us to hold a public meeting in connection with the incident. We at once called a meeting in the Boarding House and decided to hold a public meeting the very next day. We hit upon a novel method of circulating the notice. A short notice was drafted at the meeting. All the students present then undertook to make fifteen or twenty copies of it each. This done they went out to different parts of the city allotted to each of the students. We fixed the hand-written notices inside the *Mohallas*. This was a novel

method and at once attracted attention. In addition to the college students, a good many people from the city attended the meeting which was held in the premises of *Tribune* press, Lahore. When the proceedings of the meeting were subsequently published in the papers my professors came to know of my part in the demonstration and one of them, Professor J.C. Oman was very angry with me for having passed the resolution in favour of a "dismissed" government servant. As it is well-known Mr Surendranath Bannerjea was a distinguished member of the Indian Civil Service, but very early in life was dismissed for some trivial fault. I may mention in this connection that many years subsequently I myself saw a letter from Mr. Bourdillion as one time Lt. Governor of Bengal saying that if the government had known what a powerful public speaker and agitator Surendranath would become then it would have thought many times before dispensing with his services. The letter was shown to me by Mr. N. Gupta, the Editor of the *Tribune*, but I do not know how it came into his hands.

The Hindu Family Relief Fund

When I came down to Lahore in March 1887 as Assistant Professor in the Government College, there were very few public institutions in Punjab, and the membership of such as did exist was confined to comparatively youngmen, the older men not knowing English and not being familiar with the advantages or importance of associations founded on the Western model. It is perhaps not exaggeration to say that from the time I joined the staff of the Government College at

Lahore to the end of the century, myself and L. Harkishen Lal were responsible for drafting the constitution of at least two-thirds of the Associations — most of them proved to be ephemeral — that came into existence at Lahore during the period. Very often we were together, but now and again we did the drafting independently of each other.

L. Harkishen Lal returned to Lahore after his studies in England in the early nineties. The Hindu Family Mutual Relief Fund had come into existence a year or two earlier when the constitution of the Fund (drafted by me) was discussed by a committee of five or six persons of which I was one and it was adopted after minor changes. The idea of the Fund originated with a clerk in one of the railway offices very probably serving under R. B. Bishen Dass. A clerk had died in very indigent circumstances and it became necessary to raise a subscription from among the clerks of the railway offices for the benefit of the widow. Such an idea is repulsive to Hindu instinct. Working on the principle of the Hindu customs of *Nendra*, the clerks evolved the happy idea of having a regular fund for the mutual benefit of the survivors of its members. He communicated his proposal to R. B. Bishen Dass who was for a long time Personal Assistant to the Manager of the Northern Western Railway—the name North Western Railway came to be given to the system much later. When I first came to Lahore as a student in October 1879, it was known as the *Sindh, Punjab and Delhi Railway*.

This is, however, a digression. R. B. Bishen Dass

called a small meeting of five or six men at his house and placed the proposal of his clerk before them. I was one of this small committee and from the very beginning I was very much taken up with the idea. My cousin R.B. Ladha Ram Sahni was posted at Lahore at the time or was posted soon after. So far as I remember he was not one of the five or six who formed the original committee which discussed the proposal and formulated a scheme to give effect to it. After the rules and regulations had been drafted and adopted by the committee, a larger and more representative meeting was called in the Sikhsha Sabha Hall to formally inaugurate the Fund. The meeting was held in the long *verandah* of the building. I have not visited the place for the last 40 years and do not know what changes have been made in the building during this time. So far as I can recall, about 60 of the town attended the meeting. The draft constitution was discussed in detail and finally adopted by the meeting and by a formal resolution of the meeting the Fund was inaugurated. The men present at the meeting, or most of them, became the original founders of the Fund and signed a membership form there and then. My membership No. was 31. I cannot now recall any of the original members who are living today, but there may be some. R. B. Ladha Ram Sahni became the first President of the Fund with R.B. Bishen Dass as its Honorary Secretary. Both took very great interest in the management of the Fund and in popularising it. After the death of my brother Ladha Ram, R.B. Bishen Dass became the President of the Fund. He was a very good natured gentleman, of a pious disposition and very

conscientious in the discharge of his duties, both official as well as non-official. He was an ornament of the Hindu society. His brother L. Madho Ram, who was also employed in the railway, was another gem of a man whom it was a pleasure to know. I have known very few gentlemen who were so deservedly popular as these two gentlemen. I wonder if they had any enemies at all. They were ready to offer their help to every good cause and in their personal character and dealing they were altogether above suspicion. I had the pleasure of counting several sons of the two brothers among my pupils and friends. The most distinguished of them of course was Mr. Balak Ram, I.C.S., who met with a fatal accident some years back, while yet in service as a judge of the High Court, Bombay.

The Himalayan Union Club

Soon after I had joined my appointment at Simla, I fortunately made the acquaintance of Mr. (afterwards Nawab) Maula Bakhsh which did not take long to ripen into an intimate friendship. It so happened that my house adjoined that of Mr. Maula Bakhsh. It is not often that one comes across such good hearted people. He was there employed as a clerk in the P.W.D., but he was known, so it seemed to me, to every Indian at Simla. Earlier in life he had served as clerk on a low salary in the Post Office and it was only by dint of ability and hard and honest work that he had risen to his present position of a senior clerk in one of the Government of India offices. He was a shrewd man but extremely affable in his manners and

always ready to help friends and strangers alike. Before I left Simla for Lahore, he accepted an appointment in the Political Department and was deputed as an interpreter in Persia. He was a good Urdu writer and was fond of contributing news and notes to the columns of *Tuti-i-Hind*, a weekly journal published at Meerut. He could speak Persian with a fair degree of fluency. In Persia, he made himself specially useful and was helpful to Khan Bahadur Allah Bakhsh in inducing the ex-Amir Ayub Khan to accept the hospitality of the Government of India. He soon rose to the position of an Attache. Returning to India he was at first appointed as Extra Assistant Commissioner but was soon transferred to the Political Department at Delhi, from where he retired with the title of "Nawab."

I must now retrace my steps and return to the happy days that Maula Bakhsh — as he was to me — and I spent together at Simla. We soon formed a public association at Simla under the name of the Himalayan Union Club. I became the Honorary Secretary of the Club while my friend accepted the office of Honorary Treasurer. This distinction existed only on paper. In practice we worked in absolute union of heart and spirit not only in the affairs of the club but in many other things. For the club, we had an ambitious programme of work, but for the present our activities were confined to the establishment of a public library at Simla and arranging public lectures on all kinds of subjects. The only library that Simla possessed at the time was small collection of books, consisting mostly of presents made by members of the United Service Club. It was located in

the Assembly Hall, popularly known as the *Nach Ghar*, then situated a little above the Cart Road but afterwards transferred to the new stone building on the Mall. The building accommodated the municipal offices and the hall on the top roof and some adjoining rooms were used by the A. D. C. etc. The whole building was known to the public as the Gaiety Theatre. The Library in the Gaiety Theatre was not open to general public.

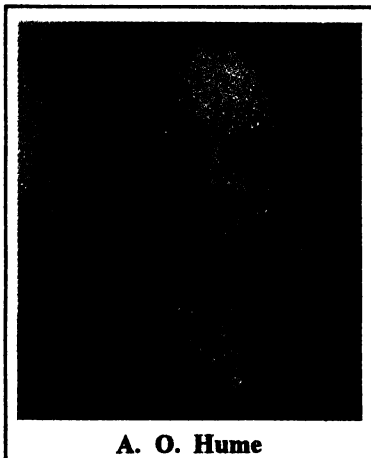
We had a fairly large number of good books in the Himalayan Union Club Library. Some of them were received as presents both from European and Indian residents, while others were purchased with the donations from friends. We were on the look out for a site for a permanent Library and had even opened negotiations with the owners of three or four suitable places. But unfortunately the institution languished after the departure from the station of both Maula Bakhsh and myself and our successors finding it difficult to maintain it handed over the books and other assets of the library to the Simla Municipality which was supposed to maintain some sort of a Library on the Cart Road. Several years later I once paid a visit to the Library on the Cart Road and was greatly disappointed with what I saw of it.

The Lecture side of the Himalayan Union Club also remained in a most flourishing condition, during the two years that I and Maula Bakhsh were in charge of it. Among other lecturers I can recall the names of Pratap Chandra Majumdar, Shankar Pandurang Pandit and

Mahadeo Govind Ranade. I also gave several lectures, three of them being on the weather and one on some other subject. Mahadeo Govind Ranade took the chair on the lectures on the weather which were delivered in the hall of the Government School.

The Indian National Congress

It need scarcely be mentioned that, the first session of the Indian National Congress at Bombay in closing days of 1885, created a stir in all over India. Elsewhere I have described some of the scenes of sudden political awakening that were witnessed during the first four or five sessions of the



A. O. Hume

National Assembly. A.O. Hume,²⁹ the founder of the Congress, threw himself heart and soul into the new movement. In 1886, he published three pamphlets written in vigorous, eloquent and moving language every paragraph of which breathed a spirit of hope and courage. According to the story current at the time, not less than fifty thousand copies of each of them were circulated. We could get half-a-dozen copies, or even more, on assuring the distributors that they were to be sent out to friends.

I was very much impressed by the fact that an

English gentleman, who had risen to the position of a member of the Viceroy's Council and who might have become the head of a provincial Government, should have taken it upon himself to plead the cause of India. I was anxious to meet Hume and hear from his own lips as to what had led him to take such a step. In those days Government servants were not debarred from joining political associations and taking part in public discussions of political questions. While being a Professor in the Government College at Lahore, I myself was a member of the Indian Association, Lahore, and the fact was very well-known to my Principal. Once he himself presided when, in the hall of the College, the Indian Association with myself as a member, presented an address to Mr. W.S. Caine, M.P., for taking great interest in Indian affairs in general and in connection with the Temperance Movement, in particular.

As a Government servant, I could not take an active part in the Congress activities till my retirement in April 1918, but I attended some of the most important annual public meetings of the National Assembly in the capacity of a visitor. I remember the wide-spread stir created by mass distribution of two or three vernacular pamphlets. These pamphlets were published in all the provincial vernaculars and copies circulated, broadcast, all over the country. This method of mass political agitation created something like an alarm in official circles, with the result that although at its birth Lord Dufferin had blessed the Congress, before the 'child' was two years of age the Government threw all kinds of

obstacles in the way of the third annual session that was to be held at Allahabad under the presidency of Sir Andrew Yule, a well-known Calcutta merchant of the time. Sir Auckland Celvin, Lt. Governor of the province, strongly criticised the Congress movement as seditious. The Allahabad Session marked an open rupture between the Congress and the government.

“Patriotic Associations” and “Loyalist Associations” were soon started in important centres all over northern India with the avowed object of opposing the Congress. Secret circular letters were sent round to all the Local governments to enlist, so far as was possible, more Mohammadans in the services.

In the United Provinces, a number of such associations were started, it was believed, under official inspiration. In the Punjab, at least one association was started but it came to a premature end. The place of "Patriotic Association" was, however, taken by a weekly. This was not the time for starting an Indian daily. Even the *Tribune* of Lahore was yet a weekly paper with the name *Punjab Patriot*. It was long edited by a well-known Indian gentleman. The name of the proprietor was never made public but it was widely believed that certain influential Englishmen, who were also interested in the local Anglo-Indian *Civil & Military Gazette* were at the back of it. I may mention that the popular view was confirmed by Mr. Rama Krishna, founder of the well-known firm of Messrs Rama Krishna & Sons, Booksellers, who told me that he himself was

approached to take up the editorship of the paper before the post was offered to the gentleman who subsequently resumed the responsibility. The main purpose of the paper was obviously to counteract Congress activities. About the same time, another paper, *The Observer*, was started at Lahore as the exponent of Muslim opinion. Both the *Punjab Patriot* and *The Observer* carried on a vigorous propaganda against the Congress. In this work they received substantial official support by the purchase of a large number of copies for government institutions. I doubt very much, however, if they achieved much success in the province — thanks mainly to the enthusiasm created for the Congress cause chiefly among the students by frequent visits of Hindu and Muslim Congress leaders from other provinces. The two men who paid frequent visits to the province and greatly influenced public opinion in favour of the Congress were Raja Rampal Singh and Mr. Ali Mahammad Bhimji. Neither of them was a fluent speaker, but they more than made up for their linguistic shortcomings by their enthusiasm and the wonderfully impressive manner in which they spoke. Raja Rampal Singh's quaint dress attracted crowds to see him wherever he appeared. He wore a hat which he continued to keep on his head while he was addressing a Congress meeting, but the rest of his dress was that of a gorgeously attired grandee of Mughal Court. He was a *taluqdar* and hailed from the neighboring North-West Province (present U.P.). He always spoke in English, but in spite of his manifest deficiencies of grammar and idioms, he never failed to make a wonderful impression upon his audience. Mr. Ali Mohammad Bhimji addressed

meetings in Urdu, but as *Khoja* from Bombay he had no better command of his vernacular than the *Raja* had over his English. And yet it would be perfectly correct to say that he was one of the most impressive speakers I ever heard. Both the speakers were regular annual visitors to Lahore for several years in succession.

Returning to the *Punjab Patriot* I well remember that once when the Editor wrote a letter headed: "Why we oppose the Congress?" some wag replied to it by scribbling the words: "Because you are paid for it", across the College Reading Room copy. On another occasion, a student wrote one letter and he added a slanting stroke to the letter 'P' in the word "Patriot" and rearranged the order of the letters in the manner to spell "Traitor." Add the slanting stroke to the opening letter of 'Patriot' making the letter 'P' into 'R' and rearrange the letters as follows:

2	3	5	7	4	6	1		1	2	3	4	5	6	7
R	A	T	R	I	O	T	equal to	T	R	A	I	T	O	R

This was really an ingenious way of changing the word 'Patriot' into 'Traitor.' Passed from mouth to mouth the paper was soon known as the 'Punjab Traitor', all over the province. Even to this day, a quarter of a century after the extinction of the paper, every Punjabi above the age of forty will tell you who the Punjab 'Traitor' was.

One of the earliest of the public gatherings, at which I was present, was the remarkable second Bombay

Session popularly known as the “Bradlaugh Session” held in 1889. It was remarked at the time that this session was attended by exactly 1889 delegates, though the number of visitors far exceeded the delegates. Sir William Wedderburn,³⁰ one of the small band of Englishmen known as “the friends of India” was in the chair. The presence of Charles Bradlaugh³¹ had attracted a large contingent of both delegates and visitors from the Punjab. I remember Professor G. K. Gokhale³² as he then gave a short address at the open session on bi-metallism,³³ then a burning topic of the day. Another noteworthy thing that I feel inclined to mention here is the fact that, on a call for subscription to the Congress funds being made, there was a never-to-be forgotten shower of cash, notes, cheques and even slips falling into the large number of hats that were sent round, and money was still pouring in when further subscriptions were stopped for want of time specially as Mr. Bradlaugh, who had arrived at the pavilion in the midst of wild enthusiasm, was not keeping good health. Mr. Bradlaugh was not well at this time and in fact he had undertaken the voyage to India in search for health. But the shadow of death was already hanging over him and he passed away not long after his return home. For the same reason, he could not make a more than a few days stay at Bombay. A number of addresses from different provinces were presented to him. His own speech was, it is not necessary to say, a masterpiece of eloquence the like of which I have not heard. What this means may be judged from the fact I have heard again and again, men and women like Surendranath Bannerjee,²⁷ Mrs Sarojini

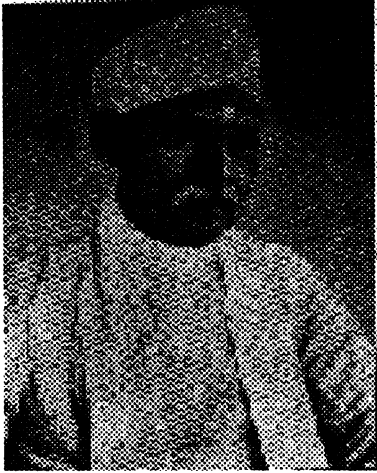
Naidu,³⁴ Ananda Mohan Bose,⁵ Pratap Chandra Mazumdar, Swami Vivekanand³⁵ and Mrs. Annie Besant,³⁶ whom I once quite audably but involuntarily called sorcerers. The subject of her magnificent oration was 'pantheism' which I could not accept but towards which I was being carried away by her oratory in spite of myself; this took place in 1893 at Lahore. Among other many distinguished men, it was at this Congress that I saw for the first time, Pandit Ajudhiya Nath,³⁷ father of Pandit Hirdaya Nath Kunzru. Mr. Bardley Norton, then an ardent congressman, had remarked that he and his fellow congressmen from Madras had been escorted to Bombay by a posse of policemen, when Pandit Ajudhiya Nath sprang to his feet and announced that the honour of having a police escort was not reserved for Congress leaders from Madras, but that it was shared by himself and his Congress companions from the U.P. with the additional distinction that, in their case, they came in charge of a police escort headed by a high European police officer whom he named.

While I am referring to the Bradlaugh Congress at Bombay, I may also mention a personal incident that took place in a Congress session in that city on that occasion or, probably, on a subsequent occasion. Ranade occupied a seat amongst the distinguished guests on the dais. As he wanted to talk to me about some social conference matter, he sent for me from my place on one of the back seats reserved for visitors. While I was sitting on the dais Mr. Ranade happened to go out for a few minutes leaving me seated where I was. Presently, a well-dressed gentleman — he was obviously one of the officials

of the Congress — came up to me and began speaking rudely somewhat in the following language: “Who are you?” “Why are you here?” and so on and so forth. I was much amused and at once repeated exactly the same questions to him. A little scene was created on the dais when Mr. Daya Ram Ciddumal, I.C.S., of Shikarpur, who was also sitting on the dais next to me, intervened and explained to the presumptuous Congress official who I was and how I came to be there. The official then apologised and retired.

The Punjab Enquiry Committee

In one way those were the most inspiring days I have ever spent in my life. I lived on terms of the most intimate confidence with Malaviya Ji,³⁸ Motilal Ji,³⁹ C.R. Das,²⁶ Abbas Tyaibji,⁴⁰ and others and I could see the working of the mind of these leaders in connection with not only the Enquiry but also in the matter of their dealings with Government. I cannot tell how many anxious hours Pandit Madan Mohan Malaviya spent in running about the Central Jail and L. Harkishen Lal's house. Pandit Malaviya was charged with the duties of finding out on what terms L. Harkishen Lal and his companions were willing to appear as witnesses before the Hunter Enquiry Committee. At the same time Mr. C. F. Andrews⁴¹ was running backwards and forwards between L. Harkishen Lal's house and the Government house to find out if those terms were acceptable to the Government. The breakdown of these negotiations was the signal for the starting of non-co-operation with the



Madan Mohan Malaviya

Government. The final decision was taken at two long sittings of selected leaders at the house of Malik Girdhari Lal at the back of L. Harkishen Lal's house. One sitting lasted nine hours almost at a stretch. Some fruits and light refreshments were kept in the adjoining room and who felt the need to attend to the inner man could slip out into the room and help

himself to anything that was available on the table. On the second day the meeting continued similarly for about eight hours. At the conclusion of these two meetings it was decided that if the Government was not prepared to allow L. Harkishen Lal, L. Duni Chand and Pt. Ram Bhai Dutt and one or two others to be brought into the enquiry room and allowed to remain there throughout the time the witnesses were examined against them, the Congress should boycott the official enquiry committee altogether. It was explained that no satisfactory enquiry could be made unless the witness were examined in the presence of the principal accused and such instructions as they could give to their own counsel. It was further explained that the officials who had arraigned the accused on such serious charges were allowed to be present in the enquiry room all the time, that the committee was sitting and examining

witnesses while the counsel for the accused was forced to take his instructions from his clients in jail. The accused were deprived of the advantage of hearing what was being alleged against them by the witnesses and then instructing their counsel to cross-examine the witnesses. In these circumstances the enquiry was reduced to a farce and Mahatma Gandhi,⁴² C.R. Das and Motilal Nehru were very strong on the point that no fair trial could be held under those circumstances. On the second day the last two hours were very anxious indeed. The final decision was taken with a very heavy heart. No



Mahatma Gandhi

one knew what was going to happen. Everyone was indeed filled with the gravest apprehensions and it was only the feeling that no other course could be taken consistently with the self-respect of the people which forced them to arrive at the final decision. Even so, as I have said above for a couple of hours there was a very tough struggle in all opposing minds but on minds that were conscious on the one hand of the great risks which they were running in adopting the course. They did simply because there was no escape visible to them unless they were prepared to mortgage the self-respect and sense of honour of the

people themselves. I remember that for a couple of months I reviewed the things that were said again and again by the leaders with grave anxiety during those two hours. The decision finally reached was the decision of brave men who did not like to risk so much if only some narrow escape could be found. Their demand was reduced to the absolute minimum when they said that, the Government must be, prepared to allow the leaders to remain in the committee room, it may be in chains, during the course of the enquiry atleast into their own individual conduct, so that they might hear what was being said against them and instruct the counsel to put the necessary questions to the witnesses. Until and unless this minimum demand was acceded to they should risk everything and tell the Government that they would hold their own independent enquiry committee and publish a separate report of their own. That evening I saw Sir John Maynard and told him that the breaking point had been reached and that until the Government was wise enough to retrace its steps and allow the concession for which Malaviya Ji and C. F. Andrews had been striving for at least a fortnight, the final word would be passed on the following day and then it would be too late for the Government to make the concession with any sense of grace. Sir John Maynard was very much upset at this news and he wanted to know authoritatively if in case that minimum demand was acceded at that stage the trouble would be over. I told him this was my definite information but that I could not take the responsibility entirely on my own shoulders. I said that if he agreed in writing to approach the Governor with that request, promising his own support to

it, I would get the minimum demand of the Congress party put down in black and white by someone who was in a position to speak with authority about the matter. He gave me a letter promising his own support to the minimum demand as I had explained it to him provided someone on the other side also would state in writing that the satisfaction of that demand would conciliate the Congress leaders and that thereafter they would promise their co-operation in the work of the enquiry committee. I took Sir John Maynard's letter to Pandit Madan Mohan Malaviya. Both he and Pandit Motilal Nehru felt very much relieved to see that there was yet a ray of hope of an rapprochement being arrived at. In consultation with Pandit Motilal Nehru, Malaviya Ji drafted a letter which I took to Sir John Maynard that very evening. Sir John Maynard immediately went over to Government house and pressed that the Congress demand be accepted. Unfortunately Sir Edward Maclagan was then under the influence of Mr. (now Sir) John Thomson who was not in a mood to listen to the talk of any concession being made to the Congress party. Sir John Maynard's negotiations ended in fiasco and the Congress Enquiry Committee set to work with redoubled zeal in carrying out their enquiries into the atrocities of the Martial Law Regime of Sir Michael O' Dwyer.

The reader of these notes will hardly be able to realise that how much the people of Punjab had been struck with terror by the happenings of the memorable week which is now glorified as the national week followed by about two months of Martial Law Regime. One or two incidents may be mentioned here to drive home the helpless condition to



C. R. Das

which the people had been reduced. Pandit Malaviya, the idol of the Punjab Hindus, was more than once seen driving about at Amritsar in a common *tum tum* making enquiries as to what had happened. No one dared come near him lest by so doing he should offend the officials. No respectable person would even think on

placing his *Gari* at his disposal for fear of incurring the dire displeasure of the higher officials. Even *tanga walas* would fight shy of driving the man like Pandit Madan Mohan Malaviya about in the town lest their licence should be taken away with one pretext or another by the municipality. Again on another occasion Pandit Malaviya wanted to go and spend a couple of days in Gujranwala in connection with the Congress enquiries. Mr. Mela Ram Anand – one of the Gujranwala accused gave him permission to go and live at his house during those two days. The house was then lying vacant. Pandit Malaviya had to make his own arrangements for his food etc., but even so when Mr. Mela Ram Anand (pleader) returned to Gujranwala some weeks later he was sent for by one of the high officials and asked in an angry mood why he had allowed Pandit Madan Mohan Malaviya to stay in his house. The official insultingly added that the

Pandit could live in the *Serai* for the night. Mr. Mela Ram felt the insult but was so helpless as not to be able to say anything in reply. Mr. C.R. Das and Pandit Motilal Nehru used to take their own car to Amritsar not merely for the sake of convenience, although the convenience was the most important consideration but also because they knew that they would be putting someone to very serious risk of displeasing the officials if they used the conveyance of any of the people at Amritsar; even food and drink for them were carried from Amritsar in the car. Even so they could not induce many people to come forward and make their statements as boldly and frankly as one could have wished them to do. Many of the statements had to be verified again and again by corroborative evidence because we were afraid of official pressure being brought to bear upon the witnesses with the result that even statements recorded before the Congress Enquiry Committee and signed by the witnesses were likely to be withdrawn later under official pressure. Some of the more startling statements which reached the Enquiry Committee were not recorded at all because they were so startling that unless we could be quite sure that the men making the statements would stick to them even under grave threats from the official circles, we ran serious risks of ourselves recording statements which were not true.

Mahatma Gandhi in particular was very strong about not recording such statements at all because they exposed the witnesses to very serious risks and he would say that we had no right to do so even in the name of patriotism. It was an interesting sight to see Mr. C.R.

Das sitting in the middle of the street at Amritsar smoking his beautiful *Pachwan Huqa* and recording evidence of men and women living round about. He would go in his Rolls Royce in the morning and come back late in the evening; so did Pandit Motilal Nehru and Pandit Madan Mohan Malaviya. It was very difficult to persuade people to come forward and give evidence although they felt resentment in their hearts. One could see the frightened faces of men and women as they appeared before the judges of the Congress Committee.

While the independent enquiries of the Congress Committee were going on, Mr. C. R. Das had made arrangements to get day after day a verbatim report of what transpired before the Hunter Enquiry Committee. The Committee held its sittings in the Town Hall. Mr. C. R. Das had brought two expert stenographers with him to Lahore; both of them were mainly occupied with taking down the evidence tendered before the Hunter Committee. The more important evidence was taken down verbatim. Every evening the typed report of the evidence was read out to Mr. C. R. Das so that he could know what evidence had been given before the official Committee perhaps several hours before the Governor himself came to know of it. I remember particularly the day when one of the stenographers read out to Mr. Das the evidence of General Dyer. Mr. Das' face brightened up and it was within five minutes after the evidence was read out to him he sent the man at once to the telegraph station and asked him to wire the whole of it to his solicitor. I forgot the name of the gentleman although

we saw him at Lahore when he came in connection with the Congress Enquiry Committee. I think it cost Mr. Das something like fifteen hundred rupees to telegraph the whole of General Dyer's evidence to England. It may be imagined what a sensation it must have created in the official circle in the liberal atmosphere of Great Britain. It was a great turning point in favour of the popular view though, of course, the British officials were so well disciplined that they did not show the least nervousness at the exposure which General Dyer's evidence must have made of the official position. They put a brave face on the whole show and stuck their guns that a big rebellion had been averted by the timely action of General Dyer; so much the worst for them because it gave a rude shock to the people's faith in India in the good intentions of the British Government. As we know the House of Lords by a resolution actually commended the action of General Dyer.

I should like to mention here what is perhaps not generally known that the question asked by the Indian members of the Hunter Committee were strictly inspired by us. We had formed a small committee of 3 or 4 men with Pandit Motilal Nehru at its head for drafting the questions which were to be asked by Pandit Jagan Narain, Nawab Sultan Ahmad and Mr. Chimanlal Setalvad.⁴³ We knew what witnesses were to be examined by the Hunter Committee and we set about diligently collecting all the information that was suggested to us by our leaders and framing questions to be put to each witness. Typed copies of these questions were supplied to

each of the three Indian members on the previous night at the latest. Generally I was sent with these copies to two of the gentlemen, Pandit Jagan Narain and Sultan Ahmad. I do not know who went to Mr. Setalvad. The whole thing was kept strictly confidential and the typed copies of the questions had therefore to be sent through some reliable persons who could not only hand over the copies to the Indian members of the Enquiry Committee but who could also discuss and explain the questions and supply such other information as the members might want. Pandit Jagan Narain won a great reputation for putting a large number of searching questions not because he was better posted than the other two Indian members but simply because he occupied a position at the Enquiry Committee table which gave him the first chance among the Indian members of putting the questions. Nawab Sultan Ahmad was the last of the three and, therefore, his questions were fewest because the whole list had been already exhausted by Pandit Jagan Narain and Mr. Setalvad before his turn came. All the same he was able to put some very shrewd questions and made a good reputation for his cross-examination of witnesses. The Government must have come to know that the three Indian members were being thoroughly coached by those who had openly boycotted the official Enquiry Committee but so far as the general public is concerned, they were, I am absolutely sure, in the dark about our activities. It is but fair to add that Mahatma Gandhi was kept scrupulously ignorant of this procedure. We knew that he would have looked askance at anything that was not quite open and straightforward; the other members were not of the same mind and in several things the

same weapons were used which the government would have welcomed and which indeed the government was freely using with the great resources at its command. I might mention an instance which shows the distance that existed between the Mahatma and the other great leaders of the Congress movement. A certain gentleman not directly connected with our movement brought an official document once which was of very great use to us for our own enquiries. The document had been obtained by means which were not quite fair. It was a confidential paper belonging to some official records of a government department. I told the gentleman to take it directly to Pandit Motilal Nehru. He knew both Pandit Motilal Nehru and Pandit Madan Mohan Malaviya fairly well. The document was shown to both these leaders and they had a good word for his cleverness and resourcefulness in obtaining a copy of such an important paper. The man then wanted to show it to Mahatma Gandhi. I warned him against doing so but he was so filled with the idea of his own cleverness that he wanted perhaps to have a word of praise from the mouth of Gandhi Ji himself as he had received from the other two great leaders. I think Mr. C.R. Das was not at Lahore at the time because I do not remember that the paper was shown to him. Anyway our friend took it to Mahatma Gandhi. I was not present but my friends told me what had happened. Mahatma Gandhi looked at the paper for a minute and at once asked the gentleman how he had come by it and when he told, Mahatma Gandhi refused to look at such a dirty rag. He took the gentleman very severely to task for having put one of the officials in such a wrong position and he said that our

work was clean and we could not only encourage such methods but we must positively discourage them. He added that the information contained in that document should not be used in the course of their enquiry and that for them that document did not exist at all. This information was communicated by me both to Pandit Madan Mohan Malaviya and Pandit Motilal Nehru and they both said that they knew what Mahatma Gandhi would think of it. It is necessary to mention here that at this time Gandhi Ji was not known as Mahatma although now and again someone would speak of him as such. It was only when the non-co-operation movement spread during 1921 that the name Mahatma was given to Gandhi Ji by the people at large.

During the Punjab disorder enquiry days Mahatma Gandhi was staying at the house of Pandit Ram Bhai Dutt. He used to receive crowds of women as visitors. I used to wonder what there was in him to attract so many women. He had only two-word sermon for them "spin and be fearless." Many a time his sermon did not last more than 5 minutes only but even so the women visitors were mightily pleased with themselves and thought that they had gained some merit by going to see him and hear these words from his lips. I confess that I used to wonder a good deal what the advice really meant or what it was worth. In later years, however, I understood the real import and significance of "spin and be fearless." I wondered if the women cared to understand what he really meant. In order to please him and with no other motive perhaps women would spin and take spindles of yarns as a present to

him because he liked no other present so much as the present of spindles of yarn. I do not exactly know what he did with the many spindles of yarn he received as presents. The fashion of making a garland of them had not then come into vogue. I dare say the spindles remained with Sarla Devi Chaudhrani who became a great admirer of Mahatma Gandhi. Of the Congress Enquiry Committee report I need say nothing as I had nothing to do with the actual compilation of the report itself. I was mainly concerned with the collection and the recording of evidence. This was done at the residence of Lala Harkishen Lal. The gentlemen who were selected for the purpose of recording the evidence were Mr. C.R. Das, Pandit Motilal Nehru, Mr. Abbas Tyabji, Fazal-ul-Haq and Mr. Abhyankar. I believe Mr. M.R. Jayakar also came for some little time but did not stay for long. The report itself was written by Mahatma Gandhi himself.

On the Khilafat Issue

During the First World War a society known as *Kudam-i-Kahva* was formed for the protection and preservation of the holy places of Islam of which Mecca is the centre and the crown. They had suffered a good deal for their love of Islam. It is a pity that this love did not take any constructive form but was largely a mere sentiment. I do not know if the *Kudam-i-Kahva* was a large or influential body, at any rate one never heard of any other members of the *Kudam-i-Kahva* than the Ali brothers⁴⁴ themselves. At the time of my writing about, Ali brothers had gathered a fairly large and influential body of other

Mohammedans chiefly learned maulvies and divines who joined them in their advocacy of the integrity and independence of Turkey and their severe condemnation of the violation of the promises and pledges which had been given by Lloyd George to the Indian Musalmans. Thus for a short time the Mohammedan sentiment became very bitter. Mahatma Gandhi with the true insight of politician made the Muslim cause as his own and with the duel cry of the Punjab wrongs and the wrongs of Turkey he raised a standard of revolt against the British government. For the accomplishment of his object he adopted what has since become famous as the non-co-operation movement. The Ali brothers started the Khilafat movement⁴⁵ which became a parallel organisation with the non-co-operation movement. In August 1920 Gandhi Ji and the Ali brothers paid a visit to Lahore. Gandhi Ji addressed about a couple of hundred men who were specially invited to meet him at the house of Lala Harkishen Lal. It was here that he laid out his plans fully and made an appeal to those around him to join the non-co-operation-cum-Khilafat movement. The Ali brothers also spoke and specially Shaukat made a feeling speech to Hindus to support the non-co-operation movement at least for the sake of Khilafat wrongs. Some of the words he used are still ringing in my ears. In the light of what followed I would say without the least hesitation that they were hollow and hypocritical words. He said that the Hindus and Mohammedans were brethren and that the Muslims will never forget so long as the word "gratitude" remains in the vocabulary of the country. They will cherish feeling of gratefulness for

any help which the Hindus might give them in saving Turkey from the disruption to which the greed and selfishness of the British government had consigned her. It was a most powerful speech indeed. Addressing me personally he asked me to give up the title which I had held for something like 11 years. As I had no particular liking for a title I told him there and then that he could have my title if it served the purpose of the Musalmans in any manner whatsoever. He was mightily pleased with it and after the meeting when I had left he sent me word to make sure if the promise I had made at the meeting would be kept. He asked me to make the announcement the very next day which I did. He wrote to me a letter expressing his gratitude on behalf of the Musalmans for supporting the cause of the Khilafat. I do not know myself how in giving up my title I was supporting the cause of the Khilafat or the cause of non-co-operation, but I must say that at the moment in announcing the relinquishment of my title I made it quite clear that I was not a non-co-operator and that I had been led to give up my title to please my Musalman friends who felt let-down at the treatment of Turkey at the hands of British government after the conclusion of War.

I cannot say that Mahatma Gandhi made a very great impression by the announcement of the non-co-operation movement in the Punjab. A special session of the Congress was convened at Calcutta on the 20th of September 1920. Lala Lajpat Rai ⁴⁶ was elected president of the Congress. A large number of Punjabee delegates, myself amongst the number, accompanied L. Lajpat Rai to

Calcutta. My eldest son Dr. B. J. Sahni was also with us. The chief business of the Calcutta special session of the Congress was done at the Subject's Committee meeting which is now known as the All India Congress Committee. The special committee meeting was held in the hall of the Indian Association of Calcutta. It was a most remarkable meeting. The main subject which engaged the attention of the delegates for a whole day was the resolution of non-co-operation. Mr. C.R. Das was opposed to the resolution and he was ably supported by his then lieutenant Mr. Bepin Chandra Pal.⁴⁷ On behalf of the non-co-operation movement Gandhi himself was the chief spokesman although M. Mohammed Ali also took part in the discussion now and again. Mahatma Gandhi was a host in himself. I can never forget the duels which took place every now and again between Mr. Das and Bepin Chandra Pal on one side and Mahatma Gandhi and Mohammed Ali on the other. As I sat and watched there C.R. Das and Mahatma Gandhi struggling with each other, each with the mighty weapons of frenzied art in his hands, I could picture to myself two big armies opposing one another in deadly combat. Here was Das at the head of one of the armies hurling a detachment here and ordering another detachment there as he saw weak point in the ranks of the enemy. On the other hand Mahatma Gandhi was no less skillful in the handling of the resources of the warfare as were at his command. It was indeed a wonderful fight and I find it very hard indeed to forget the deep impression which it made upon me although as I am dictating these words I find my sentences are much too poor to express with anything like adequacy the real state of things as I saw developing

before me in that great fight between two intellectual giants.

In the final result Mahatma Gandhi won the vote of the Subject's Committee though by a very narrow majority, indeed so narrow that a re-count of the votes had to be made but the result of it was the same as before, that is to say Mahatma Gandhi winning by a very small number of votes. I do not remember this number exactly but I believe it was not far removed from 10. The open session of the Congress was interesting in a way but everybody knew from the beginning that the final voting would end in favour of Mahatma Gandhi. The canvassing on behalf of both parties was very brisk and energetic immediately before the voting took place, but Mahatma Gandhi won, as I have already said, by an overwhelming majority of votes. I need hardly say anything else about the special session of the Congress. Mr. C. R. Das remained unconvinced and so also was Lala Lajpat Rai. Both of them became converts of Mahatma Gandhi at the Nagpur session of the Congress in December 1920. I was not quite convinced of the correctness of the non-co-operation views expressed at the Calcutta Congress but the speeches of Mahatma Gandhi and others at Calcutta made a deep impression upon me so much so that although I was not quite convinced in favour of non-co-operation I decided to withdraw from the contest for the Council elections for which I had been working hard before. After the Nagpur Session I became a firm non-co-operator although in certain matters I had my own mental reservations. These mental reservations remained to the end though in all other matters my conviction in the

non-co-operation movement strengthened and deepened as time went on. Before going off the subject I should like to mention that the Nagpur Session of the Congress was unlike any other that had been held before that date. I was a fairly regular attendant as a visitor at the annual sessions of the Congress but on no previous occasion had I noticed even a tenth of the intense enthusiasm which one could see on every side at the Nagpur Session of the Congress in December 1920. Apart from everything else, the singing of few national songs and songs written on success of charkha and Hindu-Muslim unity and the Punjab and Khilafat wrongs, all these sung by groups of men and women from different provinces in so many different languages, was a unique sight indeed. I took down a good many of these songs which were being sung in the improvised streets of the Congress Camp.

Salem Vijayaraghavachariar,⁴⁸ the veteran leader from the south, was the President of the Congress. He did not go the whole way with Mahatma Gandhi. His presidential address was consequently a half-hearted plea for the non-co-operation movement. One of the mistakes, as I consider it, which was made at this Congress was the decision to stop the publication of the Congress organ *India* in England. *India* had done very great service to the cause of the country for something like quarter of a century and we felt it a great pity that in his enthusiasm as a thorough going non-co-operator, Mahatma Gandhi was prepared to have nothing more to do with a publication, howsoever useful it might be, issued from

England. In a big den, outside the pandal, the question of the continuance of *India* was debated amongst some of the leading representatives of the Congress movement from different parts of the country. Three European friends of *India* also took part in these discussions. They all pleaded very hard indeed for the continuance of support to *India*. They said that the organ had been doing very great service to the cause of the country and at that critical moment its continued publication was imperatively necessary. One of these gentlemen who was very enthusiastic in the expression of these views was Mr. Halford Knight. I do not remember exactly the names of other two gentlemen but I believe Dr. Rutherford was one and Mr. Ramsay Macdonald was another. Anyway, in spite of the hard pleading of the three European friends of *India* as well as a number of Indian gentlemen, it was decided mainly because of Mahatma Gandhi's advocacy to stop publication of *India* altogether. It was a sad blunder to take this decision. From that moment up to this we have been without an organ of our own and the amount of mischief which our enemies have been able to do to us on account of the absence of an independent organ of our own, has been enormous. I do hope that steps will be taken before long to establish an organ of our own in England.

My Connection with the *Brahmo Samaj* ⁴⁹

So far I have said nothing on an important department of life. Before I came to Lahore in October 1879, I had not heard of any reform movement. As I have already

indicated, I cannot say how exactly to describe my father's faith. He had his daily role of idol worship with all the warmth of a *sincere believer*, so much so that when he was ill, he would ask me to go through the forms and formalities of washing the idols in the morning, properly dressing them and making them the usual offerings of flowers, sweets and scents. On such occasions, my father's bed was carried to where the idols were, and he would himself sing the hymns at appropriate places. I never questioned myself whether it was right or wrong to do what I was bidden by my father to do. It was enough for me that I was carrying out the wishes of my father. To judge from the warmth of feeling and regularity with which the worship was conducted, I have every reason to conclude that my father was a sincere idol worshipper. The only thing that now raises doubts in my mind is the fact that both in the morning and at night, he recited, *with equal warmth and regularity*, the Sikh scriptures *Rohoras* and *Sukhmani*. How he could reconcile these recitations with idol worship I do not know. Probably, like millions of other persons, he had never troubled himself with such questions. It was enough for him that he was stirred by the *puja* as much as by the *recitation* of the purely theistic adoration of the "God without form, unborn, unbreakable, eternal, omnipresent and omnipotent." As for myself, the idol worship never stirred feelings of reverence in me but neither did I look upon it as wrong. Ninety-nine persons out of every hundred never care to think of the how and the why in matters religious. They go on doing what they see their elders doing and consider it right conduct because their parents never questioned it.

When I came to Lahore, however, the whole scene was changed. My father had passed away. My pedestrian journeys had brought me into intimate contact with a new world! They had broadened my mind, and, in many ways liberalised my views. I was fond of the Sikh scriptures at the Dharam Prakash School at Dera Ismail Khan, I had learnt Gurmukhi and when, on one occasion a gentleman of the town Lala Hukam Chand Gadhi, visited the school, he gave me a copy of the *Panj Granthi* as a prize from his own pocket for reciting the *Japji*. My religious belief was as fragile and indefinite as that of my father, but in my case at least there was a distinct leaning towards the tenets of Sikhism. Not that I made any distinction between orthodox Hinduism and Sikhism.

My previous religious training, such as it was thus formed a good basis for my association with a remarkable man in some ways, who was chiefly instrumental in bringing me within the fold of the *Brahmo Samaj*. Pandit Shiv Narain Agnihotri, who was our teacher of drawing and mensuration at the Government School at Lahore. He was an ardent *Brahmo*, an enthusiastic social reformer and a very good Urdu speaker. Public speaking was a novelty for me at Lahore. With the exception of a *padri* occasionally addressing exhortations on Christianity in broken Urdu in the *bazar* at Dera Ismail Khan, I had never before heard a public lecture. At Lahore, I used regularly to attend the weekly Divine Service in the *Brahmo Mandir* – which was generally conducted by Pandit Navin Chandra Rai or Pandit Agnihotri. Navin Chandra Rai was a good Sanskrit

scholar. He was not a very fluent speaker, but his sermons were thoughtful and impressive, chiefly because he would illustrate his points by quotation and stories from the Hindu scriptures, etc. Agnihotri made up by his earnestness and eloquence what he lacked in scholarship. He seemed to take great pains in the preparation of his sermons and public lectures, specially on social and religious subjects. The Indian Association of Calcutta⁵⁰—the only all-Indian political organisation before the establishment of the Indian National Congress in December 1885—had a branch at Lahore of which Agnihotri was one of the most prominent members and, certainly, the most impressive speaker. Occasionally, I also went to the evening lectures at the Rang Mahal Mission School and the morning service at the *Arya samaj*.⁵¹ Sometimes in 1882, Agnihotri gave up his appointment in the Educational Department, and, becoming a *Sanyasi*, devoted his whole time to the Mission work of the *Brahmo Samaj*. I well remember the scene in the *Brahmo Mandir* when Agnihotri publicly accepted the role of a *Sanyasi*. Pandit Navin Chandra Rai acted as the priest and conferred on him the changed name of Swami Sattyanand Agnihotri—a name which he bore from this day to the end of his long life. So far as I know, this was the first occasion when an English educated person had given up a well-paid post* in order to devote his life to public preaching. The hall was too small to hold the audience and many had to stand outside in the *verandah* and the compound. We must remember that, in those days, a meeting of not more

* He was drawing a salary of between Rs. 150 and 300 at the time he became a sanyasi.

than 200 persons was looked upon and reported as a "monster" meeting. Tall, slim and handsome as Agnihotri was, he looked the very picture of a man commanding respect as he stood before the large audience clad in his loose, *sanyasi* garments. He himself was listened to in pin drops silence but once when Navin Chandra was addressing him some words regarding his future life, his new duties and obligations as a religious teacher, there was a little noise. With a certain class of people the *Brahmo Samaj* was most unpopular and it was believed that an attempt at creating a disturbance was contemplated. Noticing this, Agnihotri sprang to his feet and lifting up the hem of the Sadhu's toga, he said: "India has lost everything that once made her a great country, but even in her poverty, subjection and ignorance, one thing she has not lost — the respect for these (ochre coloured) clothes still remain as her prized and proud possession." The appeal went home and even the mischief-maker had not the courage to create an uproar as they had intended to do.

The event created a great impression and attracted several enthusiastic youngmen to the *Samaj*. Some of them determined to follow Agnihotri's own example in relinquishing their future prospects in life and dedicating themselves to the service of the theistic church. Prominent among these were Devi Chand Gupta (better known by his *Sanyasi* name of Shradhe Prakash Deva), Bhai Sunder Singh, Bhai Harbhagwan, Bhai Chattar Singh and Pandit Girdhar Rai Biswasi. The first two became whole time missionaries of the *Samaj*. Bhai Sunder Singh (better known as Sadhu Seva Singh) did not

live long. He was a most humble soul and had the real spirit of a *Sadhu*. He lived with his wife and children in the *Ashram* behind the *Mandir* hall. I sometimes saw him sweeping the floor of the *Mandir*. I believe hard work combined with extreme self-denial was the real cause of his premature death. He was a good singer and he would often walk through the streets of Lahore with an *Ektara* (one stringed musical instrument) in his hand, singing *Hari Ram Bhajo* and other religious songs. He was a constant companion and co-worker of Shradhe Prakash Deva to whom he looked upon a guide and elder brother. It is not my purpose in this book to give a biography of these two good men to whose ministration the *Brahmo Samaj* all over Northern India owes a deep debt of gratitude. Both were among the best specimens of sincere believers whom the Punjab has produced. Shradhe Prakash Deva has left a valuable legacy to future generations in the form of a number of religious publications to some of which I will have occasion to refer later on in this chapter.

Pandit Girdhar Rai Biswasi is another good soul who was attracted to the *Brahmo Samaj* at this time by Agnihotri. He and the other whom I have named above made best personal sacrifices. I believe at one time they gave up everything they possessed to the *Samaj*, and but for a certain change in Agnihotri himself, to which I will refer presently they might have consecrated their whole life to the service of the *Samaj* like Shradhe Prakash Deva and Sadhu Seva Singh. As a poet and singer, Pandit Girdhar Rai's services to the *Samaj* and the

cause of theism in the whole province will not be easily forgotten those who had the good fortune to hear his inspiring songs either from his own lips or from others. Till quite lately he was a constant attendant at the *Mandir* and, of course, on such occasions he would take a leading part either in singing his own songs or other hymns. His collection of songs, *Biswasi Binai*, has found its way into many Punjabi homes not Brahma families alone.

Bhai Chattar Singh's name is not much known even in *Brahmo Samaj* circles, I am sorry to say. He died young—a victim, like Sadhu Seva Singh—to a consuming passion for the service of the *Samaj*. Whenever any work for the *Samaj* was to be done, Chattar Singh would be the foremost man to offer his services for it. He was a poor man. He was a clerk in one of the Railway offices on Rs. 20, I think. Worse still, with a quarreling, ill-tempered wife, his home life was far from happy. But even so, it was a real pleasure to see his cheerful face while his overdone enthusiasm for service in the cause of the *Samaj* was sure to inspire the dullest person. Bhai Chattar Singh was a truly religious man. I was by his side at the time of his death. A couple of hours before the end came, sometime in 1894 or 1895, I noticed him moving one of his hand on a pillow that was lying close to him on the bed. I did not understand what it meant. The movements were repeated again and again. Looking more carefully at the tracing of the fingers on the pillow, I could vaguely decipher the word "Reading." I asked some one to sing hymn and give reading from some religious book when the movements stopped. A

couple of hours later the patient peacefully passed away. Bhai Chattar Singh's constant struggles between the miseries of an unhappy home and his passion for carrying out what he regarded as the sacred obligations of his faith made a deep impression upon me.

I have, perhaps, devoted too much space to these details. My only excuse is that I am anxious to convey at least a faint idea of the type of men with whom I came into intimate contact in the early years of my association with the *Brahmo Samaj* at Lahore. I have said nothing so far about four other men who along with Navin Chandra Rai are generally regarded as the founders of the *Samaj*. In their own way all of them were noteworthy men. There are more good, honest and courageous men in what many people would call the common flock of society. The reader will find it extremely difficult to realise that in the early eighties of which I can speak with personal knowledge and even bitter experience, it required no small courage even to make the verbal profession of the "Brotherhood of Man" and to acknowledge openly that Mohammad, Christ and all other great teachers of humanity were as worthy of a homage and reverence as Rama or Krishna or the one of the other saints, sages and seers of our own country. Let no one point to me well-known texts from the Hindu scriptures and the songs of great Hindu reformers saying the same thing as the *Brahmos* professed. More than once I was challenged to a public discussion on such subjects by educated men who called themselves reformers. I wish to emphasise, that I myself noticed scores of times that the mere

mention of Christ or Mohammad with respect as a great religious teacher, immediately led to the emptying of the *Samaj* hall of practically everybody excepting the few *Brahmos*. How many times, on such occasions, have I not heard people exclaim, as they rushed out of the hall, "Oh, they are Christians;" "They are followers of Mohammad;" "They have no faith of their own;" "They are denationalised people" and a dozen other similar opprobrious epithets. My friend Bhai Kashi Ram remained an outcast from his community – and many other well-educated and highly influential men – simply because he had taken a cup of tea at the house of a Christian missionary. I have myself been abused in my face by educated persons for being *Brahmo* and even for eating with an outcast like Lala Harkishan Lal. I was twice persecuted myself, once in 1882 for readmitting a recent Christian convert into Hinduism and, again in April 1884 for eating with a youngman who, though a Hindu had adopted the Mohammadan faith some years earlier and was most anxious to come back into the Hindu fold. By getting up a feast and eating with him, we (Lala Harkishan Lal and myself) were the means of fulfilling his wish to become a Hindu again. Sometimes in the early nineties, I think, Bhai Kashi Ram and myself were openly asked by certain highly educated persons, including two Rai Bahadurs, and District Judges, to leave the floor at a public meeting when they were going to distribute some sweets to those present. This they could not do, so long as two *Brahmos* remained on the *durri* on which they themselves and the rest of the company were squating. Such instances can easily be indefinitely

multiplied, but I believe those I have given above with suffice to drive home the fact that a *Brahmo* was looked upon as the most hateful of persons.

I do not know when exactly I joined the *Brahmo Samaj* as a regular member, but I was admitted as a sympathiser within a year or two after my arrival at Lahore. Before long my interest in the *Samaj* became so keen that I was treated by many persons as a member of the *Samaj*. In conjunction with Bhai Kashi Ram, I established a *Young Men's Religious Association* which used to meet weekly in the *Mandir*. I was the Secretary of the Association. The membership was open to all. Under the auspices of the Association we used to have prayer meetings, lectures and debates. It proved to be a very active body and, in particular, the debates were very largely attended, the outsiders freely taking part in the discussions. They initiated the debates. The President was always a member of the Association. Summaries of two or three of my lectures in connection with the *Young Men's Religious Association* were printed in the form of pamphlets. One of these on *Book Revelation* long remained for sale on the book-stall of the *Samaj*. "Book Revelation," "The Existence of God," "The Existence of Evil" and "Prayer" were among the chief subjects of discussion. This was a great time for public debates on religious and social subjects, though scholarly subjects like "Tennyson and Science," "Mysticism in English Poetry," "Shakespear as a Moraliser" and "Sir Walter Scott's novels" were also occasionally taken up. There were two other debating places for young men

close to the *Brahmo Mandir*. One was known as Ramji Dass Public Rostrum and the other the Latafat Hall. The former was simply a shop at the left hand corner of the Hospital Road leading from Anarkali Bazar toward the *Brahmo Mandir*. As it opened on Anarkali Bazar, it was very well situated for attracting an audience. Ramji Dass was a gentleman of liberal views though he would not ally himself with any particular faith. He had been a Christian, a Mohammedan and has professed several other faiths besides. He belonged to Kusur and early in life he had kept a school of his own. Finally, he settled down at Lahore. He lived a simple life and if he was in want, he would go to one of his friends and ask for a rupee or two, being convinced that he would not be turned away. Most of his time would be devoted to his "Public Rostrum." He would fix two or three popular subjects for debates. If there was no one else present to start a debate, he would begin it himself and go on till some one appeared to speak on it. Everyone who wanted to have a turn at speaking had to deposit a paise on the table before he was allowed to open his lips. The collections thus made were sufficient to pay for the rent of the shop, with, perhaps, a few *annas* over and above for Ramji Dass' own expenses. In this manner the Rostrum was fully occupied for two or three hours in the evening. The audience stood in the *Bazar* and consisted of the floating mass of humanity passing through the street. Sometimes, several youngmen, chiefly college students, would fix up a subject for debate among themselves and going to the "Rostrum" would talk the matter out to their heart's content. Like other students I also occasionally took part in the public debates at the Rostrum. I particularly

remember one debate when the subject for discussion was '*Book Revelation*'. I took with me in my pocket two or three beautiful stone paperweights cut in the form of small bound books. These were made at my native town and were sold for a few *annas* each. In the course of my own remarks, I pulled out a paperweight from one of my pockets and holding it out to my audience told them that some people, would ask us to consider this book as the sole repository of God's truths, while another person would point to this other book (at this stage, I pulled out another paperweight from another pocket and held it out to my audience), and make the same claim for their own book. "There are many other persons also each making similar claim for his own book to the exclusion of all right claims," I said.

The other public debating place, the Latafat Hall was also close to the *Brahmo Mandir*. Roughly, it occupied the same position as the front of the late R B Lal Chand's house does today. I believe there was a tomb in the neighbourhood. There was no hall, or any other kind of building. The Latafat Hall was just an open piece of ground with a portion raised a couple of feet above the level of the public road which it faced. Who was in charge of the arrangements I do not remember, but public debates on various subjects as well as public lectures were held there twice a week on the hot summer evenings. These discussions were of a somewhat superior kind and, occasionally, literary addresses were also arranged there.

Looking back upon these debating contests, I do

not think they served a very useful purpose. The one thing that attracted us, college students, was that they provided us, as we believed, opportunities for practising the art of public speaking and improving our knowledge of the English language. All speeches were made in English. An Urdu speech, except by a practised speaker, would not be tolerated in those days. However, there was a great deal of unreality about most of the debates. Besides, they bred a spirit of contention and on the whole, I am not sorry that they have almost completely gone out of fashion.

Reference to the interesting debating centres, the Public Rostrum and the less romantic but more useful Latafat Hall, has taken me somewhat far from the reminiscences of my early association with the *Brahmo Samaj*, but in a personal narrative, such occasional "out of the track" excursions are inevitable. At the time of my first introduction to the *Samaj*, the whole body was in the throes of an internal commotion over the Kuch Behar marriage. The *Lahore Samaj* had adopted a neutral attitude in the schism but in reality, it was dominated by *Sadharanists*, as the secedes from the *Brahmo Samaj* of India were called. I need not go into these schismatic differences and disputes as they made no appeal to me and, up to this day, I have never taken the smallest part, even as the supporter, on either side. It is interesting to note that the fanatics in both parties would sometimes contend that a man like myself who strongly refused affiliation with either side could not strictly be regarded as a *Brahmo*. The number of such persons, however, was

insignificantly small with the result that I have, throughout my life, enjoyed the fullest confidence of the leaders on both sides. On my own part, I have always showed equal respect and regard for them.

It is a matter of no small pain to me to record that it was because of the schismatic differences in the Lahore Samaj that two weekly services began to be held in the *Brahmo Mandir*, one on Sunday evenings and the other on Wednesdays. Lala Kashi Ram or Bhai Ralla Ram Bhimbat officiated at one of these services, while as a rule, Agnihotri or Navin Rai would occupy the pulpit on the other. Even so, the disputes became somewhat unpleasant and, as Agnihotri had a large and devoted following especially among the young men whom he had recently attracted to the *Samaj*, he came to the unfortunate conclusion that he could make himself more useful if his activities were left quite unfettered. Friends tried to dissuade him, but his success, specially after he had dedicated his life to the public, had now developed in him strong autocratic tendencies. The man who used to appeal to us so vehemently in the name of reason and conscience probably came to believe, as his later life showed, that nature had endowed him with some of extraordinary powers and faculties which were denied to common humanity. It has often struck me that the life of such a man as Agnihotri should be a fit subject for "studies in human psychology."

This is, however, a soliloquy. At one time Agnihotri decided to form a new centre for his religious

activities. I have the authority of one of his most devoted followers and admirers, Shardhe Prakash Deva, to say that in this resolve he had the fullest support of a large number of *Brahmos*, several of whom formed the nucleus of the 'Centre'. It was to be, so everybody believed, nothing but another place for preaching *Brahmoism* with even greater zeal and devotion than was found possible in the neutral *Brahmo Samaj*. This view was soon justified and confirmed by the publication by Agnihotri of an inspiring work *Ruhani Zindgi* (Spiritual Life), copies of which were to be found in many *Brahmo* households. A few *Brahmo* and others made regular use of it as a help to their religious discipline. For a few years, the *Deva Samaj*, as Agnihotri's new centre was called, made rapid progress. Everybody regarded it as a branch of the *Brahmo Samaj* any of us who would not follow Agnihotri's lead in separating ourselves from the parent *Samaj*, now and again attended his services. Before long he had a large house built with a bigger hall than that of the *Brahmo Samaj*. With a band of enthusiastic and devoted young followers to help him in his mission work, Agnihotri carried his message to several other districts. In particular, he was able to produce a large volume of religious literature. In the midst of such activities one day, quite abruptly so, a great change came over Agnihotri. He lost complete faith in God and calling his religion as "science grounded," he adopted all the symbols of orthodox Hinduism that he had so enthusiastically discarded on his joining the *Brahmo Samaj*.

How had the change come about. The current story

was that in some litigation with Chanda Singh, a blind pleader at Ferozepur, he had been very badly worsted. Agnihotri believed himself to be in the right, although the court had decided against him. "How could God," he was said to have argued with himself, "see him let down so completely! If God could not uphold a righteous cause, such as his was, of what use could he be for frail humanity?" There is nothing in the world so tragic as the moral fall of a man. Like so many others, Agnihotri lost his moorings, and once set adrift without rudder and compass to steer his course on the stormy ocean of life, he tossed up and down. Such moments come, I believe, in the life of everyone. It requires no small courage to stand firm and unshaken. In Agnihotri's case, unfortunately, courage failed him and in the pride of his self-conscious righteousness, he conceived himself as the highest product of humanity. It is not necessary to labour the point. It will be enough for me to say that like the Archangel Lucifer he lost his paradise and fell.

I have myself seen Agnihotri being worshipped by some of his followers exactly as I had worshipped my father's idols at Dera Ismail Khan ten or twelve years earlier. I cannot say why knowing my views as Agnihotri and others did, an invitation was sent to me to witness, perhaps, the most painful spectacle of my life. The big hall of the *Deva Samaj* was crowded with men, with only a sprinkling of women. I imagine, the great majority of these persons were visitors who had been, like myself specially invited to the function. On one side of the hall a high richly covered platform had been erected. In the centre of the platform, there was a wooden *chawk*.

provided with a back. Overhead, there was a gorgeous canopy, the pillar supporting it being decorated with bunting flags, festoons and flowers. On every side this feast for the eyes was ample evidence to show that we had been invited to some great ceremonial occasion. We were not kept long in waiting. After everybody had been seated, from adjoining room emerged Agnihotri robed in what appeared to be red silk garments with a golden *mukut* over his head. Altogether, he did not seem to be very different from the representation of Krishna in *Ras Leela* performances such as those I myself had seen many a time in the courtyard of Seth Kalyan Dass' firm at Dera Ismail Khan. He was appropriately led by some of his followers to his place on the platform just below the canopy.

I am not exaggerating when I say that the scene had a most depressing effect upon me. But even a more painful sight yet remains to be described. Frankly, had I not seen it with my own eyes, I would have refused to believe that, of all the men in the world, Agnihotri would allow himself to be *worshipped* with lights, scents and flowers, all placed in a *thali* (plate), or that well-educated men, including graduates could so far forget themselves as to perform what I certainly consider degrading act of human worship. My anguish was all the keener to see one of my own friends, S. Gurmukh Singh, B.A., leading the party of five worshippers who performed the regular ceremony of the *arti* before Agnihotri in the presence of some five hundred visitors. Involuntary tears flowed down my face. Is this the man, I asked myself again and again, who both by precept and



I would have refused to believe, that of all the men in the world, Agnihotri would allow himself to be worshipped.

example had brought me into the *Brahmo Samaj*?

After this sad experience I made up my mind to have nothing to do with the *Deva Samaj* or its founder. Many years passed when one morning, I met Agnihotri on the road near the University Convocation Hall. He stopped to talk to me. The following conversation took place between us:

Agnihotri : “You have not come to see me for a long time.”

R R Sahni : “We are going different ways. You go one way and I go another way.”

Agnihotri : “Have you lost all respect for me?”

R R Sahni : “No. I am grateful to you for having attracted me to the *Brahmo Samaj*. I sincerely respect you for what you did for me.”

Agnihotri : “Why do you not follow my lead now if you have respect for me!.”

R R Sahni : “Maharajji! I have sincere respect for you for teaching me to look first and foremost to my own reason and conscience for guidance, to honour great men, but to follow them only so far as their teaching may appeal to my own reason and conscience. In what I am doing I try to follow your own advice because it appealed to me. You have abandoned your own old teaching. You observe caste and many other practices of orthodox

Hinduism which I gave up
under the influence of your own
precept and example.

Agnihotri : "*Achcha*"! (With this monosyllable, he
abruptly left me.)

I never met him again.

Here I consider it necessary to mention that atheism, as such never had any terrors for me, though I believe that agnosticism would be a more consistent and reasonable attitude for the skeptic to adopt. While a student at college, I read a good deal of the atheistical literature issued by Charles Bradlaugh, Mrs. Annie Besant and one or two other members of the Secular Society. This I did, not in the spirit of a scoffer, but of an inquirer. I also studied two or three biographies of Bradlaugh with great interest, and although his atheism, made no appeal to me, I take pride to count myself among his sincere admirers. I wish many of those who call themselves theists were a tenth as honest, as truthful, as fearless, as helpful to the poor and the needy and as ready to take serious risks and fight for the freedom of subject nations as Bradlaugh was. His offer of personal services to Mazzini for instance, at a most critical and dangerous stage in the freedom movement of the Italian patriots in the 1860's, must be an inspiration and source of strength to every lover of humanity. Again, I have myself seen his letter to A.O. Hume in which he gently rebuked the founders of the Indian National Congress for offering him some monetary help for his great sacrifice of time in the interest of the freedom

movement in India. Mr. Bradlaugh was angry with Hume and said that if he heard again about any suggestion of compensating him for what he was doing, he would drop the Congress cause as not worth supporting. I saw and heard Bradlaugh when he undertook a voyage to this country chiefly for the benefit of his health, but also to attend the fifth session of the Congress held at Bombay (December 1889), Sir William Wedderburn *presiding*.

I have entered into this rather long digression about Bradlaugh to show that I was really upset by Agnihotri making such a somersault as not only to cut off his connection with the *Brahmo Samaj*, but also to abandon his faith altogether in the existence of a Supreme Power. But I lost all patience with him when I found him usurping the place of honour that no human being can or should arrogate to himself.

I do not know when exactly I joined the *Brahmo Samaj* as a regular member. Certainly it was not before I took up service. I had discarded my sacred thread and lost faith in caste soon after I came into contact with Agnihotri, Navin Chandra Rai, Lala Kashi Ram and other leaders. I was invited to all the important functions of the *Brahmo Samaj*. I regularly joined the *Priti Bhojan* (Love Feast), which was an essential part in those days of the *utsav* (celebrations). Though I was not a member of the *Samaj*, my liberal habits and way of life led everyone to believe that I was well on the way to become a *Brahmo*. I remember attending the marriage ceremony of Mulk Raj Bhalla (elder brother of Lala

Hans Raj) with the daughter of Lala Beni Prasad, an ardent *Brahmo* leader. It was solemnised according to *Brahmic* rights in the hall of the *Samaj*. I think it is time now to say a few words about Mr. Navin Chandra Rai specially as some of the things to which I wish to refer are not likely to be known to any one else now living. Babu Navin Chandra came to Lahore in 1869 in the joint capacity of Vice-Principal of the Oriental College and Assistant Registrar of the Panjab University. The University got a charter to grant degrees only in 1882, but before this the charterless University held its examinations for granting diplomas. Navin Chandra was a remarkable man. It will be no exaggeration to regard him as the founder of Hindi literature in the Punjab. Before the time I do not know of any Hindi book produced in the Punjab. He not only wrote Hindi books himself, but also encouraged local *pandits* to write books in the Hindi language. It was said that sometimes, he would write a book himself and, with a view to encourage others, he would ask someone else to publish it in his own name. He was a most unselfish man who was always thinking of doing good to others. He was accessible to everyone who cared to approach him for advice or help of any kind. All his spare time was spent in teaching, preaching, advising and helping all who came to him. It will be news to many to know that in one way Navin Babu was the real founder of the *Akhbar-i-Am*. Pandit Mukand Ram was employed in the *Anjuman-i-Punjab* which was virtually under the Panjab University. On Pandit Mukand Ram asking Navin Chandra Rai's advice as to what his two sons should do,

he was told that they should start a weekly or fortnightly paper in Urdu. Navin Chandra would himself write notes and news in Hindi which Mukand Ram's sons would then translate into Urdu for their paper. Navin Chandra continued this kind of help to the *Akhbar-i-Am* for a considerable time. The two sons of Pandit Mukund Ram would often be seen in the hall of the Government College in the early eighties taking down notes in Urdu from the *Civil & Military Gazette* for their own paper. One of the most remarkable things to the credit of Pandit Navin Chandra Rai (as he was generally called) was to train and bring up a waif for a life of honourable citizenship.

One day Navin Chandra found a small boy begging in the streets. On enquiry he found the boy had lost his parents and that he had no one to support him, excepting a brother who was himself in need of help. Navin Chandra took him home and started an account in the name of Udho, the waif boy. With this capital Navin Chandra started the boy on a career of hawker of boiled gram. Udho would take his food in his benefactor's kitchen and, day after day, would go round into the streets with a basket of boiled gram. Navin Chandra would himself see what the net profit of the boy was at the end of each day. A strict account was kept of the daily earnings of the boy. After some months, a few rupees had accumulated to his credit.

Pandit Navin Chandra now asked Udho to discontinue selling boiled gram in the streets. Instead, he would take him with himself to public auctions and *bid for*

him for small articles, books, looking glasses, crockery etc., always taking care not to bid for anything that was not readily saleable and to go in for nothing that was outside the means of the boy to purchase. The corner of a room in Navin Chandra's own house served as Udho's store room. Navin Chandra would himself direct Udho to take the articles to particular individuals whose names Navin Chandra would suggest to him. For instance, a science book Udho would be instructed to take to a certain Professor of Science. He was further told to ask for a certain price for the book, no more and no less. In this manner, working under the detailed instruction of Navin Chandra, Udho was able to put a few hundred rupees. His chief source of profit was the purchase of useful second hand books at a public auction and their sale to persons who were likely to want them. Sometimes, a book purchased for a few *annas* was readily disposed of for several rupees. Udho was now in a position to be launched upon the third and last stage of his career. As advised by Navin Chandra he rented a small shop in Anarkan Bazar where he would exhibit his miscellaneous collection of articles purchased at auctions, sometime under the guidance of Navin Chandra and, at other times, independently. I may mention that I had these details from Udho's own lips. Udho Missar, as he afterwards came to be known, was a well-known figure at Lahore. Towards the end he rented a big shop and even so he had to keep his surplus goods in the godown at the back of his shop. For several years before he died he became a dealer in sports. When I asked him once what his goods were worth, he replied that he would

not part with them even for forty thousand rupees. Naturally, he was much attached to Navin Chandra Rai and the *Brahmo Samaj*. In 1886, so far as I can remember, Navin Chandra Rai retired from services and left Punjab, Udho then allied himself to Agnihotri's *Deva Samaj* where he remained to the end of his life. He brought up his brother's daughter and gave her some education. In this work he was helped both by Navin Chandra Rai and Agnihotri. The girl subsequently became the wife of Agnihotri, his first wife having died sometime earlier. Udho Missar always dressed himself in a most humble manner and, I do not think in his whole flock Agnihotri had a more sincere, faithful and devoted follower than Udho Missar, the waifboy, whom Navin Chandra Rai found in the streets of Lahore and brought up as an honourable, simple, straight forward, unostentatious citizen.

In writing this article of my own life, I have felt again and again that I have frequently stayed away from my main theme, but my excuse is that it is not the school and college education alone that makes a man, but that his social surroundings often leave in him even more abiding impression which deeply influences his whole course of life and which may even become an integral part of his mental and moral make up. This is, perhaps, more particularly the case with a man like myself, who was early thrown on his own resources and, more important still, brought into intimate contact with entirely new surroundings that made powerful appeal to him.

* * *

VII

The Ethics and Technique of Maintaining Self-Respect

One of the hardest tasks with which a middle class Indian was faced in the closing two or three decades of the great Victorian era was to maintain his self-respect. Those who have not yet crossed the line, say, at forty, will, perhaps, find it difficult to understand what I mean. Those were the days of what has aptly been called imperialistic jingoism. The feverish territorial scramble in the "no man's lands"—a heartless phrase—in Africa, and the newly found doctrine of spheres of influence in the East, made statesmen go mad. They said they were charged by providence to impose their own civilisation and culture on them, but, in practice hated those who had the ambition to adopt their ways. They spoke of freedom but actually robbed nations of whatever of that commodity their victims had long possessed. The conflict and the clash of the two opposite types of cultures gave rise to misunderstandings. A writer is of the opinion that "Gladstone was no statesman" while he admits Benjamin Disraeli to be a statesman but "only of a very low order." Who is then a statesman? In the words of John Bright, the right hand of W. E. Gladstone—only the man who acknowledges the supremacy of the 'moral law' in international affairs as in personal affairs.

Tu....Tu.... Tu....Kidhar Jata?

My present purpose is not to write an essay but simply to refer to personal experiences. The realisation of the new-born jingoism of the time came to me in a shock, which I will certainly fail to properly describe. In the mid-summer of the closing year of the eighteen eighties or the opening year of the following decade, I happened to come down from Simla to Lahore. The only means of conveyance between Simla and Ambala available in those days was the *Tonga Mail Service*. Between Kalka and Ambala I had only one fellow-passenger, a European, whom I would call Mr. A. I think he got in at Kalka as I do not remember seeing him in the earlier part of the journey. Up to Ghaggar, rather more than half way, not a word passed between us. As a matter of fact, we did not share the seat: I was sitting in front by the side of the coachman, while he was master of the whole of the back seat, meant for two passengers. Arriving at Ghaggar, we found the stream in flood, which we had to cross on the back of an elephant and then to get into another conveyance waiting for us on the opposite bank.

While sitting on the back of the beast, in mid-stream an incident happened which gave me the shock of my life. After the lapse of half-a-century, the mere recollection of it makes my nerves tingle. All on a sudden, Mr. A broke the silence with the question to me: *tu... tu... tu... kiddhar jata* (where are you going)? Not minding the insulting tone of the question and believing that Mr. A. did not know the vernacular well enough to

express himself properly, I replied to him in English that I was on my way to Lahore. Without another word, Mr. A. gave me a sharp cut on the head which made it bleed. By this time we had crossed the torrent* and were deposited on the other side of it. I was very much perplexed. I did not know what to do. After a few minutes while sitting in a *shikram* (not a *tonga*), I ventured to ask Mr. A. why had he given me the cut. He simply grinned and made faces at me but said nothing. Still I did not show my resentment by words or acts. I was pained and bewildered at what had happened. I thought I would take the matter to court. I must find out his name and address at the *Tonga* Terminus at Ambala. Once or twice on the way I thought of taking the law into my own hands but I was soon assailed by thoughts of "prudence." "It is too late now. I cannot even plead provocation. I would put myself in the wrong," and so forth.

At Ambala I got the information from the *Tonga* office about Mr. A. In a short time I found myself in the train bound for Lahore. But the irritation of the incident would not leave and I could not make up my mind about the redress that I should seek with a fair chance of success. My mental agony may well be imagined. Considering everything I would not see any way out of the ugly situation into which I had landed myself. Mr. A. was a civilian from Nagpur and it was impossible, so I thought, to get him brought to book. I recalled cases--all

* Ghaggar is only a small hill torrent which is ordinarily formidable in a few minutes but becomes dangerous immediately after heavy rainfall.

too numerous--of verdicts of "enlarged" spleens, and various incidents on Railway train: Whatever the result, I believed one thing was certain; I would be a marked man and in one way or another I would be made to lose my job.

I remained in this mood of painful suspense for nearly four months. At least a couple of times I slapped myself violently for having been so careless about my self-respect. At last I heard the comforting though unspoken words "Never mind, Ruchi Ram. Bury the past decently but with sincere penitence. You are yet standing on the threshold of life. Let the past be a warning and a lesson. There is no teacher so loving and yet so stern, so stern and yet so loving, as life itself."

This revelation — it was a real revelation — came to me with the force and authority of a commandment. For several months I repeated it again and again in my mind. I thought of various situations that might possibly arise. I carefully considered the circumstances of each case and how to avoid a clash or to face it consistently with the maintenance of my self-respect and in strict obedience to the demands of upright and gentlemanly behaviour. "In self-defence, see that you do not put yourself in the wrong." More than a dozen cases had actually arisen. The following three or four instances will serve to illustrate the underlying principles of my conduct when a clash became inevitable, after every attempt had been made to avoid it.

I Returned the Blow with all the Force I could Command

Travelling by railway was a constant source of friction. Such cases are very infrequent now, but have not quite disappeared. In the last century they were reported in the Indian section of the press every now and again. I can easily recall several cases in which some of our biggest men were involved. I refer to the fact here simply as showing the prevailing atmosphere of the time. In my own case, it will not be difficult to mention four or five incidents on the railway but I will content myself with referring to only one of them.

Sometime in the late nineties I was on my way to Simla. At Kalka we had to change to the small gauge line. In order to secure a comfortable seat near the window, I got hold of my hand bag and left it on a vacant seat in a Second class compartment. Only one seat had then been occupied by a European. I now went to get my luggage booked. On coming back to my compartment after ten or fifteen minutes, I found all the seats occupied and my hand bag lying in the corridor. The rest of the story may best be told in the form of a dialogue.

R R Sahni : *(Addressing the man in the corner say, Mr. C who had occupied my seat.)* "I am afraid you have made a mistake in occupying my seat. I find some one has removed my hand bag from the seat and thrown it into the corridor."

- Mr.C* : (*Growling*) "There is no seat for you here. You see all the seats are occupied (all were Europeans)."
- R.R.Sahni* : "But this is my seat. I placed my hand bag here while only that corner seat was occupied. I only went out to get my luggage booked."
- Mr.C* : "I do not know. Go and find a seat in another compartment."
- R.R.Sahni* : "I might not have minded it but I am afraid it is too late now."
- Mr.C* : "Do not bother me. Go and find another seat."
- R.R.Sahni* : "But this is my seat and I beg you to vacate for me."
- Mr.C* : "Get out, I say."
- R.R.Sahni* : "Mister, you can go and get the station master to find a seat for you. This is my seat."
- Mr.C* : (*Lifting up his hands*) "Will you go out?"
- R.R.Sahni* : "This is my seat. If you strike me, I will also strike you. (*Then softening down*) Mister, do not create a scene here, please let me have my seat."

At this Mr. C. gave me a sharp blow on my left cheek with the full, open big palm of his hand. I was expecting this and was prepared for it. Without the loss of a moment, I returned a blow with all the force I could command. All the other passengers in the compartment simply looked on, except Mrs. C., who occupied a seat on another bench opposite to her husband. (*Getting up from her seat, she was about to strike me with her folded umbrella*).

R.R.Sahni : (*Interrupting Mrs. C. and crossing my arms on my breast*). "Madam, beat me as much as you like, but remember, for every blow you give me — (*flourishing my hands at her*) — I will give two blows to your husband."

Mrs.C : (*Shrieking to her husband*) "Get out and bring the Station Master."

S.M. : (*A big bulky fellow, even bigger than Mr. C addressing me*). "Will you please come out, I will put you elsewhere. The whole matter will be reported to the police at Simla. Someone will meet you there. There is no time for the police to come here to make enquiries."

R.R.Sahni : "I will beg you to give the seat to this man (*Mr. C.*) who has occupied my seat. That man in the corner knows it."

S.M. "I have no time for this. I have only one seat vacant in the first class compartment or I would have asked Mr. and Mrs. C. to change over there."

R.R.Sahni : "But how do you know the vacant seat has not since been occupied?"

S.M. : "Yes, that is reasonable. Give me your hand bag, and I will place it on the seat and also put a man there."

R.R.Sahni : "Very well. Here is my hand bag". The station master soon returned and took me away with him and saw me comfortably seated in the Ist class compartment. As he left me, he reminded me that some Police Officer will meet me at Simla.

A few stations further, I was met by a European Police Sergeant who asked for my name and address. I told him that I would do this with pleasure if he would please let me have the same information about Mr. C. as also the man in the other corner as he was to be my best witness. He ran to the compartment and soon brought me the information I wanted, when I handed over my card to him on which I put down both my Simla and Lahore addresses.

Getting out at Simla I was not surprised to find that no

Police Officer appeared there even after I had waited on the platform for quarter of an hour. I never heard of the matter again.

In the Spirit of Philosophic Amusement

Scene: Simla Railway Platform. A European crowd of passengers standing round a heap of luggage waiting for their own beds, boxes and baskets. A European passenger standing next to me pushed me with his shoulder. Perhaps, he mistook the platform for the football ground. I returned a mild dig with my elbow. A stronger shouldering followed by a sharper dig. This went on three or four times — the intensity of both the shouldering and the elbow dig increasing with each successive bout. There were altogether four rounds, I think, when my opponent obviously came to the conclusion that there was no use continuing the contest. Not a word was exchanged. I can say, for my part that not a muscle of my face moved. The shouldering was taken and returned in a spirit of philosophic amusement. I must say that I expected more serious developments, but I was prepared for the worst. The contest was, however, broken off, as I have said, in the middle. I was not sorry for what happened including the break off by the other party.

Next morning I was break-fasting with an Indian friend, a senior I.C.S. Officer in the U.P. At the table I also met a highly cultured lady, the wife of a Muslim *Talukdar*. As soon I had taken my seat, the lady opened the conversation. "A great change is coming over our Indians,"

she said. I did not know what she was referring to and asked her: "What has happened? Rani Sahiba." She explained to me what her son had been telling her about that very morning. The youngman had been on the platform on the previous afternoon and had watched the whole scene. I joined here in her astonishment that Indians should have become so bold as to protect their self-respect against the unprovoked assaults of Englishmen. For her this was a novel experience. I then asked her if she would like to see the man himself. Shrewdly guessing, she said: '*Kiya ap he nahin hain*' (Was it you) ?

In the Mail Tonga

Third incident. During the *tonga* service days, I was once going from Kalka to Simla. I shared the back (double) seat with a European while a military officer occupied the front seat by the side of the coachman. This was too much for my companion. I could see that he was very uncomfortable but did not know what to do. He uttered or muttered some unparliamentary words meant for me in Hindustani but was met with a grim silence, as if I had not heard him, or having heard him, had not understood him. He asked the coachman several times to put me down somewhere. This was, of course, an impossible request and he was told so by the coachman. Half way, at Solan, he made a great fuss over the matter, he even spoke to the *tonga* clerk there but found the man as unhelpful as the coachman. He threatened to remain behind but even then no redress was forthcoming. Frothing and foaming he got into the *tonga* again.

Chagrined at his failures, he would now and again give me a push with his shoulder which I would return with an elbow dig.

An interesting part of the story is that the military gentleman was for the six hours of the journey an amused but otherwise indifferent observer. The two men did not speak a word to one another. No one suggested to me to take the front seat and I did not move in the matter myself though I would have readily accepted the proposal, if it was made to me with a polite word. This would have been within the compass of the elaborate code which I had laid down for myself soon after the insolent Ghaggar incident.

At Simla before parting company with each other, we had even a more hearty exchange of amenities than at any time during our forced partnership of the double seat in the mail *tonga*. The reader may imagine half-a-dozen variations of this incident on different occasions, but there was one element common to all of them. We parted with a particularly hearty shouldering on one side and elbow dig on the other. So frequent was this experience that I was always prepared for it and I do not think I was ever disappointed.

Remember I am a Punjabi !

I should have liked to refer to one incident in which I was brought face to face with eight or nine youngmen, but I have forgotten the full details of it. One lesson of it, however, I have not forgotten. When the situation

became desperate and I came to the conclusion that showing fight was the only remedy left for me; I told them rather abruptly and sharply: "Remember I am a Punjabi ! Come along". As I tucked up my sleeves, the youngmen, probably returning from a lost football match, were sure the game was up and soon retired. My own plan was to catch hold of the nearest of them, whoever he might have been and deal with him as well as I could, so that I might be quits with at least one of them. I was prepared to take the beating from the others, but by the rules of fair game this would have been no victory for them. In a way, the scales of honour in the fight would have been in no small measure tipped in my favour. That was my belief and it was in that spirit that I had laid down the technique for myself when I should happen to have to face several persons together all intent on assaulting me.

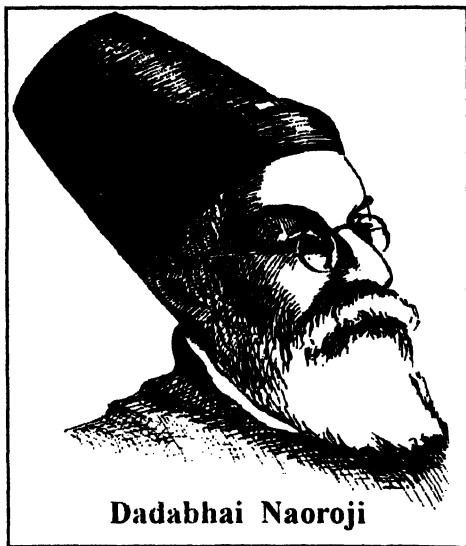
One Final Incident

I will mention here simply as it belongs to a type of cases which I have not yet had an occasion to refer to before. Some ten years back I was standing on the footpath of the mall at Lahore along with two friends when two Englishmen happened to come up that way. There was plenty of room for them to pass, but, perhaps, not as much as they would have liked to have to themselves. Possibly, they could not pass abreast of each other and with a comfortable space between them. As it was, they passed us in single file. The first man on coming up, without saying a word, shouldered one of my friends and passed on. I just touched him on the back lightly with a walking stick. He did not mind it but walked on. I think

he did not feel it and my object was simply to remind him that he might have behaved better. His companion who was following him at a little distance now ran up and flourished his stick at me. I at once moved back a few paces and, drawing a line with my stick on the ground, told the man that if he crossed that line I would also beat him. "Why did you strike my friend on the back with your stick?" he asked. "Do not ask me, but ask your friend about what happened," I said. My experience is that when a talk about the how and why begins, the first flush of anger cools down and the whole thing ends in a more or less heated discussion followed by a "let go" decision. It was the same in this case. The great thing is that, in all such cases, you should not have taken the initiative and that your own action should not exceed the bounds of a "reminder" and an "active protest."

By the time the last incident took place, the older violent assaults had become quite rare. They had not altogether ceased, but, whatever their nature and intensity my technique was sufficiently elaborate and elastic for all contingencies. Looking back upon my experiences following the unfortunate cut when I dared to share the "pride" of an elephant ride through the Ghaggar torrent with a British civilian, I find nothing to regret except that it should have been necessary for me to act in the manner I did. I wish to close this section with the sincere confession that I regarded these incidents in the light of *individual's* lack of manners and nothing more. They did not interfere with my own political philosophy of the time, despite a great deal that had happened," the advent of the British in

India was a dispensation of Providence." Such was the teaching of Ranade, Dadabhai Naoroji,⁵² Pherozeshah Mehta⁵³ and others. All these three men had themselves been the victim, as all Indians know only too well, of serious misunderstandings and unjust treatment at the hands of short-



Dadabhai Naoroji

sighted, power-proud Englishmen. But these great and good men could take a comprehensive grasp of the situation as a whole. They were gifted with vision and imagination, and a generous measure of what I would call political sagacity. How the change in India's attitude came about is a different matter. It does not belong to this personal chronicle.

I would bring this section to a close with a reference to a little incident, not because it belongs to the category of events I have mentioned above, but because it will show the spirit in which I tried to meet the situations as they arose. The sixth session of the Science Congress was held at Lahore in 1917. Professor H. and myself were appointed Local Secretaries while Professor S. was General Secretary of the Congress. As one of the local secretaries I had a good

deal of correspondence with Professor S. (I may mention that Professor H. & S. were both Europeans). When I got my first letter from Professor S., I noticed that the envelope was addressed to me as Mr. Ruchi Ram Sahni, Government College, Lahore. In replying to him, I also addressed to him in the same fashion. As other letters came, each of them was replied to Professor S. in exactly the manner he had addressed me. It was too trivial a matter to make a fuss over it. But this was not the view which other Indian Professors and other gentlemen seemed to take of it. I got a number of angry letters from some of them asking me to bring the matter to the notice of the President, Sir Gilbert Walker, Director of Meteorological Observatories. I informed each of them that it was too small a matter to be taken serious notice of and explained to them how I had myself treated the matter.

One day I mentioned to Professor H. that several members of the Congress had been complaining to me about the discourteous manner in which they had been treated by Professor S. "This is one way of addressing letters," said Professor H. He thought the gentlemen who had written angry letters had really no grievance to grumble about. I told Professor H. that if he could kindly show me one single letter addressed to him by Professor S. in the manner he had been addressing Indians, I would be quite satisfied but not otherwise. I further explained to him that I personally I had nothing to complain against Professor S. as had been squaring my account with him. Thereafter I dropped the matter so far as I was concerned.

During the Congress Session I noticed that the complaint had been made to the President, probably by one of the aggrieved persons. I say this because I found Sir Gilbert very particular in consulting me about various matters concerning the Indian Professors-matters which no one would mind it in the smallest degree.

At the end of the Congress Session the Vice-Chancellor gave a luncheon to the President and some of the members of the Congress. At the table I was seated next to Professor S. This was an interesting situation. I soon discovered that we were seated next to each other for a definite purpose. Professor S. was the first to speak to me and the first words were words of regret that he had not properly addressed the letters to me. Thus it was that the matter was satisfactorily closed.

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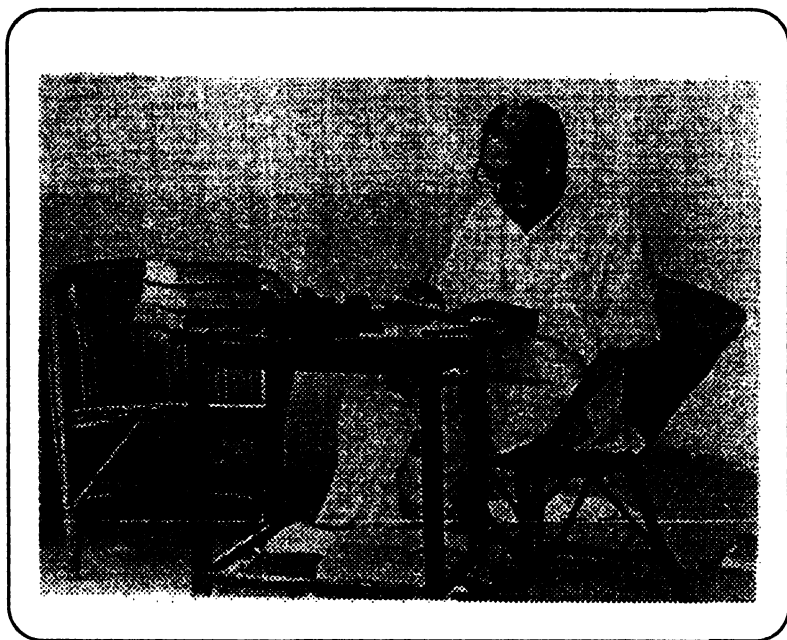
VIII

The Secret of Long Healthy Life

One question that has been put to me a thousand times by young and old, by friends and strangers, is "what is the secret of your long healthy life?"

This question is invariably followed by half-a-dozen other associated enquiries about what I eat, how many times I eat, when do I go to bed, how many hours do I sleep, am I a good sleeper, what about my walks, and so forth and so on. Most people seem to imagine that if they ate, slept, and walked as I am in the habit of doing, all may be well with them. Personally I am not quite so sure about it. Some may even come to harm by strictly following me in these respects or any of them.

Let no one forget that my food, sleep, walks etc., are more or less, adjustments to my whole previous life. I do not believe in any violent break in my habits whether good or bad. The human system by which I mean the entire make up of a man, including his mental, moral and spiritual aptitudes no less than his physical constitution, is an extremely complex and complicated thing, and, despite our much boasted sum of knowledge in the various departments of science and philosophy, we really know precious little yet about its working. By far the greater part of our knowledge, such as it is, empirical.



On his 80th birthday (April 5, 1943)

The Law of Repetition

Now, of the whole stock of knowledge or wisdom that humanity has treasured up through the countless aeons of time, I consider the Law of Repetition — as I call it — to be of greater practical value in my own philosophy of life than any other I can think of. I do not know if others have also called it by the same name. Anyway the principle which the Law illustrates is well established. Every acrobat, every drill sergeant and every teacher knows it. A habit — a good habit as well as a bad habit — is nothing but an act repeated a great many times till it has the appearance of an instinct. You cannot give up a habit once formed by an inhibitory act repeated a great many times.

Consider one thing more. It is not merely the repetition of an act that goes to form a habit, it grows with progressive intensity. A man may begin with smoking a couple of cigarettes a day. But presently he would take to smoking two, three... ten or twenty cigarettes. I have known men who had got into the habit of consuming a whole tin of fifty cigarettes between morning and bed time. The point which I want to make clear is that they did not begin to smoke twenty, thirty or fifty cigarettes a day. And they can best get rid of the habit by reducing the number little by little. In other words, as the habit grew up by the repetition of the act with progressive intensity, the inhibitory act should also be repeated with progressive intensity.

I may give an illustration from my own life. I have never smoked or used any kind of drink or drug even in the smallest quantity. But from the time I entered service, I have been a tea-addict. Perhaps that is rather a strong word. I have never taken strong tea, or even ordinary tea in large quantities. I have, however, been very particular about having my usual cup or a cup-and-a-half of tea at the usual time, and however busy I might be, I felt the need for it when my tea-time came. With advancing years, I was told that tea was harmful for me and noticed some indication that it was so. I did not like to give it up altogether. I progressively weakened my usual cup or cups with hot water, so that at the present time my two morning cups of tea contain no more than a couple of spoonfuls of the tea that I took, say thirty or forty years back. My present tea, moreover, is not made with tea leaves but with a mixture of tea and *binafsha* (violets). This has a double advantage. A mild beverage of *binafsha* in the morning is good in itself and it also lends colour to my otherwise almost colourless "tea." This second reason is a question of human psychology. It is good not to be reminded pointedly, day after day, that you have reached a time of life when it would not be good for you to take tea of the ordinary strength.

Human psychology to which I have just referred plays a most important part in our daily life - very much more important than many people imagine. I confess I am some what of a faddist in this respect. As one illustration of what I mean, I may mention that, for the past thirty years or more, I have deliberately avoided

calling a man, say, fifty years old. Instead, I would say he is fifty years of age. I have known many men who were obsessed with the idea that as they had crossed the age of forty or fifty years, they must think of themselves as old men. Some there are who would, at what I would call middle age, even claim the privilege that must belong to "old age." Again, I have deeply resented when people quote the well-known Persian Line: "Grey hair brings you the message of death." I know that one cannot cheat nature but at the same time, in my whole philosophy of life, I assign a very important place to optimism I must now go back to what I was saying about the formation of habits or giving up habits that may have once been formed. If my own views backed by long experience have any value, I would insist that nothing should be done that would mean a violent wrench with long-formed habits or ways of life. To take up an extreme case, as an instance, I would say that a fat man should do nothing intended or designed to reduce his obesity quickly. He must remember that he did not go fat overnight and no particular kind of diet, medicine or physical movements of his limbs will succeed in slimming him within a period of time considerably lower than he took in the fattening process. The change comes slowly and imperceptibly – any violent change will probably do more harm than good, especially with people above the age of forty or fifty.

This means that I have no faith in the claims for the much advertised Yogic exercises for the restoration of youth. I have reason to believe that, in spite of what the votaries and admirers of the cult may tell us, any violent

departure which these exercises must make in the life and ways of a man past his middle age cannot but do serious injury to his whole physical system and materially hasten his end. There are few sincere admirers than myself of the ancient civilisation of India, but my partiality for it shall not allow me to forget that the age of miracles is over.

Prevention is Better than Cure

So far as I know, the first rule of health is to avoid medicating yourself, as far as possible, by leading a clean, natural, regular life. Remember that my advice to one and all is to avoid medicines. I have not to say any one: "Do not go near a doctor" I have strictly tried to follow the dictum: "Prevention is better than cure." But this is exactly what people will not do, though everybody talks about it. I have not known a man in perfect health going to a doctor and paying him a good fee for advice about his continued future health. Perhaps I cannot do better to impress upon others the value of consulting a competent doctor while one is in perfect health than by explaining what I myself used to do, year after year, for about twelve years.

Soon after I came to Lahore in 1887 on the staff of the Government College, I made the acquaintance of a very competent and genial medical man, Dr. Beli Ram, who remained our family doctor till his universally lamented death by car accident. In 1912, my eldest son Dr. B.J. Sahni, also returned from England and the whole family had the benefit of his constant care and advice.

This is not all. When I was about thirty-five years of age, I came to know of an exceptionally able physician Col. Hendley who was posted at Lahore. I saw him at his house and arranged with him to devote at least an hour to thorough examination. I explained to him that, so far as I could see, there was absolutely nothing wrong with me, but he might discover trends and tendencies or predispositions that should be checked or habits of life that deserved, in his opinion, to be either modified or continued and encouraged. These annual visits lasted for many years, so long, in fact, as Col. Hendley did not leave the Punjab altogether. Sometimes, when he was posted at some other station in the province, I would make it a point to visit him there. I used to pay him Rs. 32 each time I saw him professionally but I am sure, my visits were worthwhile and that they probably saved me a mint of money in cash besides being the means of conferring upon me the inestimable boon of continued good health. Several times he did not examine me at all — I mean in the ordinary sense of carrying on a medical examination—but he generally, spent an hour-and-a-half, more or less, talking to me over a cup of tea about my long hiking excursions, my food, sleep, work and recreation hour, of my friends and studies and, in fact, every detail of my life of the past year. Knowing me thoroughly as he did after the first couple of years his questions became very searching and, frequently, apparently small suggestions thrown out here and there in the course of those talks proved to be very helpful to me in avoiding slips and pitfalls that might have cost me dear.

I will mention one or two of them. One day I happened

to tell him about my monthly visits during the previous winter to a friend at Amritsar. Sometime after his retirement from the Government College in 1896 or 1897, Professor Oman accepted the Principalship of the Khalsa College. I had a standing invitation to spend the last Sunday with him which I made full use of, whenever I was otherwise free. After a very early cup of tea, I would cycle to Amritsar, spend the day with him, talking about books, the university, men and movements in general. Politically Professor Oman was an Anglo-Indian, but both of us scrupulously avoided politics. After taking my evening tea with the Oman, I would get on my cycle again, visit the Golden Temple, look up a couple of friends and return to Lahore at night by train. The point is that, on these days, I used to do something like forty miles on my wheel. Now Col. Hendley knew that I had twice injured my left knee, once in a carriage accident and another time in a friendly competition in the College Boarding House on a Giant's Swing, when my rope snapped while I was going at top speed. I was thrown off at a distance and was confined to bed for a considerable time. On further enquiries, Col. Hendley also discovered that, when it was very cold, I occasionally felt a little pain in the injured knee. Sometime before this visit, he had also suspected rheumatic tendencies in me. Taking everything into consideration, he advised me to give up cycling altogether. Since then only once have I used a cycle when it became necessary for me to go on a cycle for a couple of furlongs in the interest of a patient.

Speaking about cycling, it may amuse some to know

that, in the early eighteen nineties a great many people at Lahore, Europeans and Indians alike, were to be seen going about on their three-wheeled machines. When exactly the bicycle was introduced in Punjab I am not in a position to say, but so far as I remember, even in the mid nineties, there were not more than half-a-dozen machines in use. The front wheel was very big, say five feet in diameter, while the hind wheel was not more than eighteen inches across, possibly only 15 inches. I have still got one of these machines lying in my lumber room. (It will not be a bad thing to exhibit it on a suitable occasion). I never used it. One or two *mistries* in the railway workshop had these machines and, perhaps, there were two or three other machines in the whole station. One day while I was going past the telegraph office (I am not sure if the post office had been shifted by this time to its present position), I saw an European coming from the opposite direction on a bicycle with the wheels nearly of the same size. That very day I discarded my bicycle and soon managed to provide myself with a new type of bicycle. I took it to the parade ground (now Minto Park) and after about three hours trials rode back on the machine.

I must now say a few words about the rheumatic tendencies which Col. Hendley discovered in me quite early in the course of my annual visits to him. He advised me to avoid constipation. On his recommendation, I used to take 'Kutnew's Powder' whenever there was the slightest cause for complaint. I was told not to habituate myself to its use -- I used to have a bottle of the powder in each of the three or four boxes that I might be carrying with me during

my hiking excursions but I would only take a small dose when I noticed that there was a tendency towards constipation.

After a short time, I myself started a practice, the mere mention of which will, I am sure, make some people laugh at me. I refer to it here as I feel that, by doing so, I may be helping a few persons appreciably to improve their health. This will more than compensate me for becoming the target of the taunts and sneers of scoffers.

For the last forty years or so I have made it a habit not to leave my bathroom without examining the faeces with regard to its colour, quality and consistency. If on any occasion, I was not satisfied with the evaluation, in any of these three respects, I would at once make the necessary change in my diet, sometimes even necessitating the omission of a whole meal, but, generally, only reducing the quantity of food or discarding one or more of the dishes. In this connection, I may mention that, for the first ten years or so, I kept a strict record of the results of my observations. Each of the three conditions of the faeces had ten marks assigned to it, and under each head I would enter in the appropriate column the number of marks which my observation led me to award. In subsequent years, I merely used adjectives like satisfactory, not very satisfactory, unsatisfactory and others. Long habit has enabled me for some years past not to make any kind of record, but the examination of the faeces has become such a confirmed habit that I find it difficult to give it up. I do not feel quite happy on a railway journey when I have to empty my bowels without

being able actually to see the contents with my own eyes.

This habit instinctively makes me think of the food I may have taken during the preceding 24 hours, with the result that I have to adjust my daily diet so as to fit it in with my system for this purpose, I find, for instance, that with advancing years, vegetables and fruits have been gradually displacing meat as an article of my diet. While in earlier years I had a voracious appetite for fowl, fish and lamb, but at present I do not take more than a small piece of fish or the leg of a fowl. I also like mutton soup to be occasionally served to me. I do not consider it profitable to enter into greater details about my diet because, as I have already remarked, the exact kind and quantity of the various dishes must be determined by each individual; it is simply a matter of adjustment with a particular system and must vary from individual to individual and even with the same person from year to year and from season to season. So many diverse factors are involved in the question of the composition of diet that no single rule can well be laid down. I take about two pounds of good milk in one form or another — such as milk, *dahi*, *lassi* or in milk pudding. I also take a couple of eggs every day in one shape or another. I am very fond of fruit both after lunch and dinner. For the past forty years or so, I have avoided ice or ice-creams scrupulously.

Some ten years ago, that is at the age of about seventy years, I gave up dining out. Even before that time whenever I happened to dine out, I made it a

practise not to touch, if possible, many of the dishes placed before me. This was done as much to avoid overloading my stomach as to select only the dishes approximating, so far as that was practicable, my usual menu. I have developed a sort of horror of a too complicated composition of dishes, though by most people my own daily food would not be regarded as quite simple. I like to have a little of a new dish, but the trouble arises when one finds on the table half-a-dozen or more dainties.

On one occasion when I was invited to dine at the house of a friend, I actually found as many as fifty-two different kinds of dishes. My host was not a prince and not even a particularly wealthy man, but as we had not met each other for a long time, he somehow thought of entertaining me to a sumptuous feast even beyond his means. I also pitied his servants who must have been at the pains of exercising their brains to recall all their half-forgotten knowledge of the cookery books of many countries in order to assemble such a wonderful menu of dishes. I do not know what these dishes exactly were, for, beyond counting them, they did not attract me. I told my friend that I was the same simple and unsophisticated fellow that he had known me many years back and that, according to my philosophy of life, I saw disease lurking in many of the tempting things placed before me. Knowing my intimate relations with him, I even ventured to tell him frankly that there were as many dishes spread on the table as there are cards in a brand new pack of them and I did not feel inclined to gamble

with my health. I begged him to order his servants to take away all but four or five dishes of their own choosing. But he would not listen. He said I could take whatever I liked and leave the rest-the usual, wasteful Indian practice of entertaining friends! Eventually, I had to exercise a little self-restraint myself and take only the four or five dishes that were nearest to me without even looking at the others.

Avarice is the Root of All Evil

An even more intriguing situation presented itself to me a few years later when I was dining out with a gentleman of a princely family. There were three of us at the table on this occasion. The third diner also claimed noble blood in him. Ours was thus a triangular company, the interesting part of it being that the three angles were, socially speaking, quite unequal to one another. It was a round table at which sat a mere professor with a nobleman to his right and a prince to his left. Presently, the dinner was served. To begin with, a huge silver *thal* with large number of dishes arranged in it, was placed before all of us. The size of the *thal* alone was enough to frighten me for, although I had the honour of dining at the high table, so to say, of some of the biggest men in the province, I had not seen the like of it before. I knew my princely host intimately, but I did not like to say anything about the grand feast that he had arranged for us. In view of his high position he could not have done otherwise. During the dinner also I scrupulously avoided admiring any of the dishes lest I should attract more attention than

I liked and be pressed for another dish of the same kind. From the very beginning I made up my mind to confine myself to as few dishes as possible. Indeed, I did not make a preliminary survey of the dainties that filled the capacious *thal* or were spread out on the table. I distinctly remember saying to myself in so many words, though of course, without uttering a word: "A grand feast! Avoid the temptation and go home safe and sound as you came. Will You? And I replied: "Yes certainly." I decided to partake of not more than two dishes, if that was possible, out of the couple of dozens that were placed before us together with any other that might be specially pressed upon me. I began with the *pullao* and another dish that was nearest to it in the *thal*. This happened to be cauliflower. Occasionally I made a show of touching two or three of other dishes but without allowing a single morsel to enter my mouth. I did not care to look at them and I do not know what they were. It is unnecessary to enter into further details. A couple of other dishes were specially recommended by our kind host which I accepted and disposed off. They were, of course, very palatable. The nobleman to my right admired them vociferously as he was admiring many of the other dishes. Of the two dishes the one that he admired most was a sweet dish of almonds. Hearing the special praise of the dish, the attendants, with or without a sign from the host, at once produced three more dishes, one for each of us. I excused myself with many apologies adding: "Raja Saheb, I am not used to such rich dishes." I think the nobleman took four dishes of almonds pudding, but I am not sure. On coming home, I took lot of fruit, as I used to do at the end of my every day dinner and one or two

vegetable dishes without any bread. Next day, when I met the nobleman, he complained to me of the extremely uncomfortable night he had spent while I reminded him that it was not for nothing that our *Sastras* had said (it is best to quote the authority of the *Sastras* for everything): "*Lobh papun ka mul hai*" (Avarice is the root of evil). As it was, I had my three miles walk in the morning and went through my day's routine duties as if nothing had happened.

* * *



Sons of Ruchi Ram Sahni
Seating (L to R) Birbal Sahni, Bikramjit Sahni
Standing (L or R) M.R. Sahni, M.L. Sahni, Raj Sahni

Notes*

1. H. F. Blanford, F.R.S., was the first meteorologist who did extensive studies of the Indian rainfall (Blanford, H.F., *Rainfall of India, Mem. India meteorological Department*, 3, 658, 1886).

2. J.C. Bose (1858-1937) was a pioneer researcher in the fields of physical, electro-physical and plant physiological sciences in India. He started his research career in or around 1894 when his interest in electromagnetic waves was roused by the work of Hertz through an account of Oliver Lodge. Bose retired from the Presidency College, Calcutta, in 1915. In 1917, he founded the Bose Institute at Calcutta with a self-raised endowment of Rs. 11 lakhs (1 Lakh = 100000) for plant physiological research.

3. P.C. Ray (1861-1944), popularly known as Acharya Prafulla Chandra, was a chemist of international fame. He was a pioneer in setting up chemical and pharmaceutical industries in Bengal. His many-sided interests made him an ardent educationist, a selfless patriot and a devoted social worker. Jawaharlal Nehru described Acharya Ray and his work in the following words: "Acharya Ray was one of the giants of the old and, more particularly, he was a shining light in the field of science. His frail figure, his ardent

patriotism, his scholarship and his simplicity impressed me greatly in my youth...’’

4. Denzil Ibbetson served as Superintendent of Census, Director of Public Instruction and Financial Commissioner in the Punjab province and as Chief Commissioner in the Central province.

5. Ananda Mohan Bose (1847-1906) was India’s first Wrangler. He was a leader of the *Brahmo Samaj*, one of the pioneers of the freedom movement, educationist and a social reformer. Bose was associated with the Indian National Congress since its inception and was elected President at its Madras session in 1898. He founded the City College of Calcutta in 1879. In recognition of his services to education he was nominated a member of the Education Commission of 1882.

6. Syed Ahmad (1817-1898) founded the Muhammadan Anglo Oriental College (1875), which was raised in 1920 to the present Aligarh Muslim University. In 1882 he was made a member of the Government appointed Education Commission. His important archaeological work *Asarus-sandid* (a graphical study of Delhi’s monuments) was published in 1847. He started the famous weekly *Aligarh Institute Gazette* (1886)

7. Alexander Pedler, F.R.S., taught Chemistry at the Presidency College, Calcutta. He served as Meteorological Reporter, Bengal Government; Principal, Presidency College, Calcutta (1896); Director of Public Instruction,

Bengal (1899) and Vice Chancellor, Calcutta University (1904).

8. Asutosh Mookerjee (1864-1924) is regarded as a great educationist and a great jurist of his time. He was the living spirit in the field of higher education at the Calcutta University and for twenty years he was a judge of the Calcutta High Court.

9. Guru Govind Singh (1666-1708) was the tenth and last Guru of Sikhs (1675-1708). He remodelled the Sikh religious beliefs and practices and renounced social inequality and caste distinction. The successor of Teg Bahadur, Guru Govind Singh set himself the task of organising his followers with the thoroughness 'of a Grecian law-giver.' He compiled a supplementary *Granth--Dasween Padshah ka Granth* (*The Book of the Tenth Sovereign*). Guru Govind fought against some neighbouring hill-princes and Mughal officers with remarkable courage and tenacity.

10. Maharaja Ranjit Singh (1780-1839), is one of the most important personalities in the history of Modern India. A born ruler of men, Ranjit Singh transformed the warring Sikh states into a compact monarchy. At the age of 20 he took control of Lahore and in 1802 seized Amritsar, the holy city of Sikhs. Though a great conqueror, Ranjit Singh was not stern by nature.

11. Hari Singh Nalwa (Naola), the Sikh general who captured the citadel of Peshwar on May 6, 1834.

12. Rabindranath Tagore (1861-1941) was one of the most versatile sons of India. Humayun Kabir in his introduction to Tagore's selected essays titled *Towards Universal Man* wrote thus about Tagore: "In considering Tagore's life and work one is again and again struck by the amazing versatility of his genius. He was essentially a poet but his interests were not confined to poetry. In sheer quantity of work few writers can equal him. His writings include more than a thousand poems and over two thousand songs in addition to a large number of short stories, novels, dramatic works and essays on the most diverse topics. In quality too he has reached heights which have been trodden and that too rarely by only the noblest among men...He was also a musician of the highest order. He took up painting when he was almost seventy and yet produced within ten years about three thousand pictures-some of them of exceptional quality. In addition, he made notable contributions to religious and educational thought, to politics and social reform, to rural regeneration and economic reconstruction. His achievements in all these fields are so great that they mark him out as one of the greatest sons of India and indeed one who has message for the entire mankind."

13. Raja Rammohan Roy (1772-1833) was a social reformer and statesman, the Raja founded the *Brahmo Samaj*. He successfully agitated against the evil custom of *sati*. He visited England to represent the claims of Akbar II to the Moghul throne and died in Bristol.

14. Devendranath Tagore (1817-1905), the leader of the *Brahmo Samaj* came from the well-known Tagore family

of Jorasanko, Calcutta. In his childhood Devendranath came in contact with Rammohan Roy, one of the architects of modern India. Rammohan Roy's personality left a deep impression on Devendranath's mind. The historic *Tattwabodhini Sabha*, which largely shaped opinions and ideas of modern Bengal, was established by Devendranath in 1839. A staunch patriot, Devendranath also founded a society called *Sarvatattwadipika Sabha* in 1882 for propagation of the Bengali language. Devendranath's contribution to political awakening was considerable. His friends and disciples called him 'Maharshi' with reverence and gratitude.

15. Mahendra Lal Sircar (1833-1904) passed the final examination in Medicine from the Medical College, Calcutta, in 1860 and took the M.D. degree in 1863. Dr. Sircar was appointed a Fellow of the Calcutta University in 1870 and the Sheriff of Calcutta in 1887. He was a member of the Bengal Legislative Council from 1887 to 1893 and was associated with many learned societies of Calcutta. In 1876, he founded the Indian Association for the Cultivation of Sciences, the first institute for scientific research in India.

16. Father Eugene Lafont (1837-1908) was born in Belgium. He came to Calcutta in December 1865 to the Jesuit Mission of Bengal and immediately after his arrival at Calcutta he was attached to St. Xavier's College to which he remained associated for 43 years that he spent in Calcutta. He rendered yeoman service to science in Bengal by popularising it among students and

public. The acquaintance and friendship between Father Lafont and Dr. Mahendra Lal Sircar, which probably started in 1869, was to exert a profound influence on the scientific renaissance in Bengal. From the very beginning, Father Lafont lectured at the Indian Association for the Cultivation of Science (founded by Dr. Sircar) every Thursday evening and this he continued for 19 long years. Father Lafont lectured on all the recent scientific discoveries viz., the telephone, the phonograph, Tesla's high frequency currents, X-rays, colour photographs, the telegraph, radioactivity and so on, with very striking experimental illustrations. Dr. Sircar in his farewell talk referred to Father Lafont as the one "without whose ungrudging and long continued aid the Association could never have been an accomplished fact."

17. Rudyard Kipling (1865-1936) was a British writer and poet. Born in Bombay, he was educated in England. He worked in India as a journalist from 1882 to 1889. He won the Nobel Prize in literature in 1907. Some of his important works are: *The Jungle Book*, *Kim*, *Just So Stories*, *Puck of Pook's Hill*, *Debits and Credits*, *Limits and Renewals* etc.

18. Giuseppe Mazzini (1805-1877) was an Italian patriot, who played a leading role in the movement for Italian unification. In 1831, he founded *Young Italy*-a movement that sought to establish a united republican Italy. Mazzini lived mostly in exile-in France, Switzerland and England.

19. Kasimir Fajans (1887-1975) discovered the radioactive displacement law simultaneously with Frederick Soddy of England. According to this law, when a radioactive atom decays by emitting an alpha-particle, the atomic number of the resulting atom is two less than that of the original atom and when a beta-particle is emitted, the atomic number is one greater. Fajans studied at the universities of Leipzig, Heidelberg, Zurich and Manchester. He served on the faculty of the Technische Hochschule at Karlsruhe (1911-1917). Fajans in collaboration with Otto Gohring discovered uranium $\times 2$ now called protoactinium-234.

20. First World War (1914-1918) was fought between the Allied Powers (UK and other countries of the British Empire, France, Russia, Belgium, Japan, Serbia, Italy, Portugal, Romania and Greece) and Central Powers (Germany, Austria-Hungary, Turkey and Bulgaria). More than 8 million people were killed and about 210 million persons wounded in the War.

21. It was the *Brahmo Samaj* movement which led to the establishment of the *Prarthana Samaj* in Maharashtra. Like the *Brahmo Samaj*, its objectives were rational worship of God and social reform. The *Prarthana Samaj* has been the centre of many activities for social reform in western India and its success was chiefly due to Mahadeo Govind Ranade.

22. Mahadeo Govind Ranade (1842-1901), the author of *Indian Economics and Rise of the Maratha Power*, is called the father of Indian economics. He was a judge of

the Bombay High Court during 1893-1901. Ranade was one of the founders of the *Widow Marriage Association* in 1861. The famous Deccan Education Society owes its origin to his inspiration. C.F. Andrews observed: "the last

and in many ways the most enduring aspect of the new reformation in India has had its rise in the Bombay Presidency and is linked most closely with the name of Justice Ranade."

23. Madhavrao Namjoshi (1853-1896) was convinced that India could not make progress without industrialisation. He played a leading role in the establishment of the Deccan Paper Mills, The Reay Industrial Museum and the Victoria Jubilee Technical Institute. In 1888, he organised an industrial exhibition at Poona for the benefit of industrialists. At the same time he organised an industrial conference of which he was the Secretary.

24. Shivaji (1627-1680) occupies an important place in the history of India. He was a born leader of men. He rose from the position of a *Jagirdar* to that of *Chhatrapati* by dint of his unusual bravery and diplomacy. His most important achievement was the welding together of the Maratha race into a powerful nation, which defied the Mughal Empire during and after Aurangzeb's rule. The Maratha nation built by Shivaji remained the dominant power during the eighteenth century.

25. Lord Ripon seriously tried to introduce a real

element of local self-government somewhat on the lines of the English Law. His ideas were laid down in the form of a Government Resolution in May 1882. The purpose of introducing the resolution was described by Ripon in the following words: 'It is not primarily with a view to improvement in administration that the measure is put forward and supported. It is chiefly desirable as a measure of political and popular education'. However, the liberal views of Ripon were not appreciated by either the local governments or the authorities in England.

26. C.R. Das (1870-1925) was a towering personality in the freedom movement. He was endearingly called *Deshabandhu* (friend of the country). After graduating from Presidency College, Calcutta in 1890 he went to England, where he joined the Inner Temple and was called to the Bar in 1894. By the year 1917 he had come to the forefront of nationalist politics. In 1922, Das was elected President for the Congress session at Gaya. He wanted to give a new direction to Indian politics through his Council Entry Programme i.e., 'Non-co-operation from within the Councils.' But he could not muster enough support to carry this out and consequently he resigned from the Presidentship of the Congress. Thereafter Das organised the Swarajya Party within the Congress. In the words of Tagore, 'the best gift that Chittaranjan left for his countrymen is not any particular political or social programme but the creative force of a great aspiration that has taken a deathless form in the sacrifice which his life represented.'

27. Surendranath Banerjea (1848-1925) was the collector,

Sylhet (now in Bangladesh), but he resigned from the I.C.S. owing to differences with superiors. He edited the daily *Bengalee*. He became the President of the Indian National Congress in 1895. Sir Henry Cotton wrote in his book *New India*: “The idea of any Bengalee influence in the Punjab would have been a conception incredible to Lord Lawrence...yet it is the case that during the past year the tour of a Bengalee lecturer lecturing in English in Upper India assumed the character of a triumphal progress; and at the present moment the name of Surendranath Banerjea excites as much enthusiasm among the rising generation of Multan as in Dhaka”.

28. W.C. Bonnerjee (1844-1906): Barrister-at-Law. Bonnerjee was the first Indian to act as a Standing Counsel to the Government (1882, 1884, 1886-1887). In 1883 he defended Surendranath Bannerjea in the famous Contempt of Court case.

29. A.O. Hume (1829-1912) is the father of the Indian National Congress (1885). He helped in bringing out a vernacular paper *Janamitra* (1859). Hume, when he was Secretary to the Government of India, Department of Revenue and Agriculture, prepared schemes of redemption of agricultural indebtedness and village panchayats.

30. Sir William Wedderburn (1838-1918) was one of the founders of the High School of Indian Girls, Poona, and of the Alexandra School for Girls, Bombay. Wedderburn helped in starting and maintaining, at considerable sacrifice of his time and money, the Congress organ *India*,

published from London. He became the President of the Indian National Congress first in 1889 and then again in 1910.

31. Charles Bradlaugh (1833-1891) was a British freethought advocate. He pressed for greater freedom for the individual and in 1877 he was unsuccessfully prosecuted with Annie Besant for republishing *Fruits of Philosophy* which advocated birth control. He was elected to the House of Commons in 1882 but refused to take his seat until 1886. He attended the Bombay session of the Indian National Congress (1849).

32. Gopal Krishna Gokhale (1866-1915) was one of the architects of modern India. Mahatma Gandhi regarded Gokhale as his 'political guru.' He became the President of the Indian National Congress at thirty-six and, for about twenty-five years, occupied an outstanding position among Indian political leaders. He also founded the *Servants of Indian Society*.

33. Bimetallism refers to a monetary system in which currency was convertible into either of the two metals, usually gold and silver in a fixed ratio. When adopted by many countries at the beginning of the 19th century it proved unstable as one of the metals was always undervalued and the other overvalued.

34. Sarojini Naidu (1879-1949) played a very important role in the freedom movement. She took a leading part in the Salt Satyagraha. In 1929 she attended the Round Table Conference. She became the first woman Governor

in independent India. On her death, Jawaharlal Nehru said: "Here was a person of great brilliance--vital and vivid. Here was a person with so many gifts, but above all some gifts which made her unique. She infused artistry and poetry into our national struggle."

35. Swami Vivekananda (1863-1902): Vivekananda's ideas and patriotism inspired many to serve the country combining spirituality with intense activity in their own lives. He dealt with all the main problems of modern India. He advocated the spread of education to the masses, both men and women. He laid stress on technical education and also on learning Sanskrit. His idea of religion was universal. He wrote: 'Each man is potentially divine. The goal is to manifest this divinity by controlling nature, external and internal. That is the whole of religion'.

36. Annie Besant (1847-1933) was associated for many years with Charles Bradlaugh. She was an early advocate of birth-control. In the late 1880s she became a prominent fabian under the influence of G.B. Shaw. She spent much of her life in India. She was a prominent leader of the Indian Home Rule League. She was President of the *Theosophical Society* from 1907 until her death.

37. Pandit Ajudhia Nath (1840-1892) was a Law Professor at Agra. He founded the Victoria High School at Agra. In 1879, he started an English daily called the *Indian Herald* and then in 1890 he started another organ, the *Indian Union*. He was the General Secretary of the Indian National Congress during 1889-1892.

Ajudhia Nath was the first Indian Member of the N.W.P. Legislative Concil (1886-1890).

38. Pandit Madan Mohan Malaviya (1861-1946), founder of the Banaras Hindu University, attended the Indian Round Table conference in London (1931). In 1914, he became the President of the Indian National Congress. He was one of the founders of the Hindu Mahasabha.

39. Motilal Nehru (1861-1931), father of Jawaharlal Nehru, was an eminent lawyer and politician. In 1909, he was elected a member of the U.P. Legislative Council and in 1891 he was elected to preside over the Amritsar session of the Indian National Congress. He was an eloquent speaker, a great parliamentarian and a great organiser.

40. Abbas Tyabji (1854-1936) was a member of the Indian National Congress from its inception. An embodiment of traditional Indo-Islamic culture and modern Western thought, Tyabji broke formally with the British after serving at the instance of Mahatma Gandhi on the Congress Enquiry Committee (1891) into the Jallianwala Bagh massacre. He was second-in-command of the Salt Satyagraha and became its leader after Mahatma Gandhi's arrest. He was one of Mahatma Gandhi's most loyal and trusted followers.

41. C.F. Andrews (1871-1940) was a well-known educationist and social reformer. He joined the Cambridge Brotherhood in Delhi. He was associated first with the St. Stephens College, Delhi (1904-1907) and

later with the Vishwa Bharati, Shantiniketan (1920-1921). Andrews was greatly interested in the problem of overseas Indians.

42. Mahatma Gandhi (1869-1948) was born at Porbandar (Gujarat) on October 2, 1869. He went to England in 1888 to study law. In 1893 he moved to South Africa to practise law. There he became a champion of the rights of the Indian community, and introduced policy of non-co-operation with civil authorities (*satyagraha*) which became his chief instrument in India's freedom struggle. From South Africa he came back to India in 1915. He was a dominant figure on the Indian political scene from the end of World War I to the achievement of Independence. He was not only a man of action but also a man of ideas. Many detailed studies have been made on his philosophy of life and on his political, social, religious and economic ideas.

43. Sir Chimanlal H. Setalvad (1866-1947) was a lawyer and liberal leader. He attended the Indian Round Table Conferences in London in 1931 and 1932. He was a member of the Hunter Committee to inquire into the Jallianwalla Bagh massacre (1919). He was also Vice Chancellor of the Bombay University for twelve years.

44. Muhammad Ali (1878-1931) and Shaukat Ali (1873-1938) were important freedom fighters of India. On the eve of the First World War the Ali Brothers became vociferous critics of the British Government on their anti-Turkey attitude. For years they remained very close

to Mahatma Gandhi. Muhammad edited his English weekly, *Comrade* and the Urdu daily, *Hamdard*--Shaukat took over the managerial responsibility of the papers. Muhammad Ali was the first 'Shaikut-Jamia', the Vice Chancellor of Jamia Millia Islamia which was started in 1920. Muhammad Ali attended the Round Table Conference of 1930. Shaukat Ali founded an organisation known as *Anjuman Khuddam-i-ka' bah'* to see that the building of the *ka'bah'* at Mecca was not damaged by Saudi soldiers and to provide facilities to the Muslim pilgrims going to Mecca for 'Haj.'

45. After the First World War, the Indian Muslims adopted an aggressive anti-British attitude. This was because the religious sentiment of Muslims was offended by Britain's role in the defeat of Turkey and the dismemberment of the Turkish empire in the First World War. To channelise the anti-British attitude of the Muslims towards a nationalistic goal, the two Ali brothers Shaukat Ali and Muhammad Ali and Maulana Abul Kalam organised a mass movement of the Muslims known as the Khilafat movement. Mahatma Gandhi wholeheartedly supported the Khilafat cause with a view to uniting Hindus and Muslims.

46. Lala Lajpat Rai (1865-1928) was popularly known as 'Punjab Kesari.' Lajpat Rai's political activity began in 1888 when he attended the Congress session at Allahabad. He presided over the special Session of the Congress at Calcutta (1920). Lajpat Rai was a prolific writer. He was deeply interested in journalism and founded an Urdu daily, *Bande Mataram* and an English

daily, *The People*. He was closely associated with the *Arya Samaj* and in collaboration with Mahatma Hans Raj, founded the D.A.V. College at Lahore.

47. Bipin Chandra Pal (1858-1932) started his career as Head Master of a high school at Cuttack-the Cuttack Academy (1879). He took keen interest in journalism. He started the Bengali weekly, *Paridarsak* in Sylhet (1880), served as Assistant Editor of the *Bengali Public Opinion* (1882) and worked for the Lahore Tribune (1887). His world view was deeply influenced by Keshab Chandra Sen, Sivanath Sastri and Bijoy Krishna Goswami. He was a staunch nationalist. Through his weekly journal, *the New India* (1902), he preached the idea of *Swaraj* (complete political freedom to be achieved through courage, self-help and self-sacrifice). In 1906, he started a daily paper, the *Bande Mataram*, with Aurobindo Ghose as its Editor. He started a monthly journal, the *Hindu Review* (1913) to popularise the idea that the British Empire should be reconstituted as a federal union in which India would be treated as an equal and free partner. He was not only a great preacher but also a prolific writer.

48. Salem C. Vijayaraghavachariar (1852-1944) was a very able advocate and a leader of the Bar at Salem. He successfully fought the charges framed against him in connection with a Hindu-Muslim riot (1882) in the Court of Law. The Salem riot made Vijayaraghavachariar famous overnight. He was a close associate of A.O. Hume, the founder of the Indian National Congress. In 1920 he was elected to preside over the Congress Session at Nagpur

where Gandhiji's advocacy of '*Poorna Swaraj*' through non-violent non-co-operation was debated and accepted.

49. The *Brahmo Samaj* was founded by Raja Rammohan Roy in 1828. Originally it was called *Brahmo Sabha*--an assembly of all who believed in the unity of God. After the death of the Raja, Devendranath Tagore infused new life into the Society. Devendranath formally joined the movement in 1843 but the spread of the organisation was largely due to Keshab Chandra Sen who joined the movement in 1857. In 1865, the *Brahmo Samaj* was divided into two camps--the conservatives and the progressives. The latter camp was headed by Keshab Chandra Sen. Then again the marriage of Keshab's fourteen-year old daughter with the Maharaja of Cooach Bihar in March 1876 led to the second schism in the *Brahmo Samaj*. Keshab Chandra held moderate views about women's education and women's emancipation. He believed higher education, particularly university education, would not be suitable for women and unhindered mixing of men and women or the complete ban on the *purdah* system was fraught with grave danger to society. Those who differed with the great leader formed a different organisation known as *Sadharan Brahmo Samaj*.

50. The Indian Association of Calcutta was founded by Surendranath Banerjea on 26 July 1876. The Association was formed 'to be the centre of an All-India movement' based on 'the conception of an united India, derived from the inspiration of Mazzini.'

51. The *Arya Samaj* was founded by Swami Dayananda Saraswati (1824-1883). Swami Dayananda wanted to shape society on the model of the *Vedas* by removing all later outgrowth. He believed in one God, opposed polytheism and image worship. He raised his voice against the restrictions of caste, child-marriage and prohibition of sea-voyage. Dayanand started the *Shuddhi* movement, that is conversion of non-Hindus to Hinduism—an attempt to realise ‘the ideal of unifying India nationally, socially and religiously.’ He also encouraged female education and marriages of widows. His most famous writing was *Satyartha Prakash*, which expounded his doctrine. In the early years Dayananda also tried to come to terms with the *Brahmo Samaj*; to achieve this, a conference was held at Calcutta in 1869. But nothing came out of it. The *Arya Samaj*, however, absorbed the *Brahmo Samaj* movement in the Punjab, where the *Samaj* had already started at Lahore in 1863. Dayananda’s chief followers were Lala Hansraj, Pandit Guru Dutt, Lala Lajpat Rai and Swami Sharddhananda.

52. Dadabhai Naoroji (1825-1917) was one of the founders of the Indian National congress (1885) and thrice its President in 1886, 1893 and 1906. He founded the East India Association, London (1867). In 1892 he was elected to the British House of Commons. His important publications are ‘*Poverty and un-British Rule in India*’, ‘*England’s Duty to India*’ and ‘*Financial Administration of India*’.

53. Pherozeshah M. Mehta (1845-1915) was a founder

member of the Indian National Congress (1885). He became the President of the Congress in 1890. In 1910, Mehta became the Vice Chancellor of Bombay University.

*** Sources:**

1. *Speeches and Writings of Gopal Krishna Gokhale, Vol.III (Educational)*; D.G.Karve and D.V. Ambekar(eds), Bombay: Asia Publishing House.
2. *A Century: Indian Association for the Cultivation of Science*, Calcutta, 1976.
3. *Gandhi: His Life and Thought*, J.B. Kriplani, Publication Divison, Ministry of Information and Broadcasting, Govt. of India, New Delhi, 1970.
4. *An Advanced History of India (3rd Edition)*, R.C.Majumdar, H.C. Ray Chaudhuri and Kalikinkar Datta, London: MacMillan, 1970
5. *The MacMillan Encyclopedia*, Allan Isaacs (ed), London, 1981.
6. *An Autobiography*, Jawaharlal Nehru, New Delhi: Allied Publishers, 1962.
7. *Encyclopaedia Britannica (15th Edition)*, Chicago: Encyclopaedia Britanica Inc, 1981.

8. *The Indian Struggles (1920-1942)*, Subhash Chandra Bose, Bombay: Asia Publishing House, 1967.
9. *Dictionary of Philosophy*, I. Frolov (ed), Moscow: Progress Publishers, 1984.
10. *India Wins Freedom (An Autobiographical Narrative)*. Maulana Abul Kalam Azad, Bombay: Orient Longman, 1960.
11. *Dictionary of National Biography*, (Vol.I-IV) S.P. Sen (ed), Calcutta: Institute of Historical Studies, 1974.

Index

- Abhyankar, 168
Africa, 199
Aftab-i-Punjab, 140
Agnihotri, Pt. Shiv
 Narain, 176-79, 187-
 90, 192, 193
Agra, 17
Ahmad, Sir Syed, 3, 139
Ahmad, Nawab Sultan,
 164
Aitchison College, 41
Aitchison, Sir Charles,
 44, 68
Akhbari-i-Am, 195, 196
Alexandra Scholar, 51,
 52
Ali, Mohammed, 169, 171
Ali, Shaukat, 169
Alipore, 7
Alkaloids, 4
Allahabad, 5, 15, 24, 25,
 29, 151
Allah Bakhsh, the Head
 Mistri, 110, 112-117,
Allah, Baksh, of
 Jullundhar, 27, 28
Ambala, 200, 201
America, 21
Amritsar, 1, 34, 41,
 161, 162
Anand, Mela Ram, 161,
 162
Anarkali, 77
Anarkali Bazar, 184
Anarkan Bazar, 197
Andrews, C.F., 156,
 159
Anjumani-i-Punjab,
 195
Aravalis, 93
Armenian Restaurant,
 124
Arms Act, 8
Arya Samaj, 177
Atomic weight, 80-83
Austria, 84

Balmer Lawrie & Co.,
 113
Bahawalpur, 99
Bakhsh, Nawab Maula,

- 146, 148
- Bannerjea,
Surendranath, 43, 139,
141-143, 154
- Baoli Sahib, 99, 101
- Baroda, 134
- Barometer, 19, 20
- Bedi, Sir Baba Khem
Singh, 105
- Bengal, 5, 16, 25, 26, 93,
141, 143
- Bengali, the*, 141
- Besant, Annie, 154, 193
- Bethune College, 9
- Bhalla, Mulk Raj, 194
- Bhera, 17, 91, 141, 142
- Bhimbat, Bhai Ralla Ram,
187
- Bhimji, Ali Mahammed,
152
- Bijli da Charka*, 100
- Bimetallism, 154
- Bismuth, 75, 82, 83
- Biswasi Binai*, 180
- Biswasi, Girdhar Rai, 179
- Blanford, H.F., 1, 5, 16-
27, 29-32
- Bombay, 76, 77, 89, 93, 117,
122-24, 132, 133, 152
- Bombay University, 70,
78
- Bonerjee, W.C., 142
- Bourdillion, 143
- Bose, Anand Mohan, 3,
155
- Bose, Jagadish Chandra,
2, 3, 13, 46, 135
- Boys, C.V., 91
- Bradlaugh, Charles, 154,
155, 193
- Brahmo Mandir*, 10, 176,
184
- Brahmo Samaj*, 174
- Brahmo Public Opinion*,
141
- Bredig, Dr., 80, 84
- Bright, John, 199
- Bunsen's Burner, 85
- Burma, 18
- Cain, W.S., 150
- Calcutta, 5-7, 9-11, 15-17,
27, 90, 97, 113, 117, 135
- Calcutta Corporation, 11

Calcutta University, 3
 Caleb, C.C., 91, 106,
 107
 Cambridge University, 3
 Carpfen Hotel, 85
 Cart Road, 148
 Calvin, Sir Auckland, 151
 Central Muir College, ,
 Allahabad 5, 25
 Central Observatory, 7
 Central Province, 122-24
 Chand, L.Duni, 157
 Chand, R.B. Lal, 185
 Chand, L. Sagar, 44, 45
 Chaudharni, Sarla Devi, 168
 Chatterjee, G.N., 3, 44, 45
 Chatterji, Protul Chandra,
 103
 Chenab, 5
 China, 76
 Christ, 181
 Ciddumal, Daya Ram, 156
Civil & Military Gazette,
 140, 151, 156, 196
 Compass, 30, 122
 Congress Enquiry Com-
 mittee, 160, 162, 163

Cyclones, 5, 93

 D.A.V. College, Lahore,
 34
 Daily Weather Report,
 16-18
 Dallas, W.L., 6, 17, 26,
 92
 Dallinger, Mr., 50
 Das, Bhubon, 141
 Das, C.R., 141, 156,
 158, 161-63, 166,
 168, 171, 172
 Dass, Lala Shankar, 77
 Dass, R.B. Bishen, 144,
 145
 Dass, Ramji, 184
 Dass, Seth Kalyan, 190
 Dass, Seth Bhagwan,
 76
 Delhi, 15, 147
 Dera Ismail Khan, 176,
 189, 190
 Deva, Shradhe Prakash,
 178, 187
Deva Samaj, 189
 Dhani Pathowar, 105

- Dharam Prakash
 School, 176
Dhoti, 15, 16
 Diamond Harbour, 25,
 26
 Disraeli, Benjamin, 199
 Dufferin, Lord, 150
 Dutt, Pt. Ram Bhai,
 157, 167
 Dyal Singh Will Probate
 Case, 98, 106
 Dyer, General, 163,
 164

 Edison, 101
 Education Commission,
 3
 Electricity, 91, 150
 Electroplating, 100
 Elliot, John, 31, 32
 England, 77, 84, 86-89
 91, 108, 117, 132,
 138, 144, 173
 Epidiascope, 94
 Europe, 58, 74, 76
 Ewing, J.C.R., 59, 60
 Fajans, Kasimir, 75, 78
 80-83, 85, 86

 False Point Cyclone, 27
 Faraday, Michael, 36,
 91, 92
 Faz-lul-Hazq, 168
 Ferguson College, 78
 Ferozepur, 119, 188
 France, 84
 Fuller's Exhibitioner, 5

 Gaiety Theatre, 148
 Gadhi, Lala Hukum
 Chand, 176
 Gandhi, Mahatma, 158,
 162, 165-69, 171-73
 George Lloyd, 169
 Germany, 76, 84, 87-89,
 138
 Ghaggar, 200, 201, 209,
 211
 Gladstone, W.E., 199
 Godley, J.C., 60-62
 Gokhale, G.K., 154
 Golaknath, Charles, 48
 Golden Temple, 222
 Goldschmidt, Professor, 79
 Gopal, Madan, 105, 127

- Government College,
Lahore, 6, 33, 37, 42,
47-52, 57, 90, 94, 95,
99, 108, 142
- Grant, Dr., 91
- Grove's battery, 126
- Gujranwala, 161
- Gupta, Devi Chand, 178
- Gupta, N., 143
- Guru Govind Singh, 8
- Gurumukhi, 176
- Harbhagwan, Bhai, 278
- Harrison Road, 7
- Heidelberg, 76, 78-80, 84,
87-89
- Hemn, A.S., 107
- Hendley, Col., 221-23
- Hermury, A.C., 57
- Hertzian Electric
Waves, 103
- Hill, A.S., 5, 25
- Himalayan Union Club,
146-48
- Hinduism, 176, 193
- Hindu Family Relief
Fund, 143, 144
- Hissar, 93
- Holderness, T.W., 5, 6
- Holland, 89
- Home, Amal, 11
- Home, Gagan Chandra,
11, 12
- Hoshangabad, 123
- Hudlikar, Dr., 78-80, 87-
89
- House of Lords, 164
- Hume, A.O., 149, 193
- Hunter, W.W., 3
- Hunter Enquiry
Committee, 163-65
- Ibbetson, Sir Denzil, 3, 4
- Idol Contempt Case, 141
- India, 2, 4, 17, 18, 23,
24, 34, 43, 46, 74, 75,
77, 92, 93, 101, 132
- India Meteorological
Department, 1, 4, 16,
20, 31, 92
- Indian Association, 47,
171, 177
- Indian Civil Service,
143

- Indian Educational Service, 2, 44, 46, 59, 63, 68, 69
 Indian National Congress 11, 46, 47-49, 139 149-56
 Indian Science Congress, 213, 214
 Indian Ocean, 6
 Industrial Conference, 128-34

 Jako, 30
Japji, 176
 Jayakar, M.R., 168
 Jones, Miss, 84, 85
 Jones, Mouat, 59, 61-74
 Jorasanko, 12
 Jullundhar, 27, 127

 Kalka, 200, 203
 Kapurthala, 99
 Kapurthala Alexandra Scholar, 51
 Karlsruhe, 78, 80, 85, 86, 89
 Kaul, Dr. Balkishen, 103
 Kaul, Pandit Suraj, 103
 Kaul, Raja Dayakishen, 103
 Kaul, Raja Jaykishen, 103
 Khalsa College, Amritsar, 34, 41, 222
 Khan, Ayub, 147
 Khastgir, Dr., 13, 14
 Khilaphat Movement, 168-70
 Kipling, Lockwood, 41, 42
 Kipling, Rudyard, 41
 Knight, Halford, 174
 Koch, Mr., 85, 86
 Kohinoor, 140
 Krishna, 181, 190
 Kuch Behar, 186
Kudam-i-Kahva, 168
 Kunzru, Pandit Hridaya Nath, 155
 Kusur, 119, 184
 Kutnew's Powder, 223

 Lafoit, Father E., 13. 97
 Lahore, 6, 9, 14, 15, 31-34, 41, 42, 46, 69, 70,

- 74-77, 95, 98, 101, 120,
131, 132, 142, 144
- Lahore Medical College,
106
- Lal, Hira, 122-24, 128
- Lala Harkishen, 144, 156,
157, 169
- Lal, Malik Girdhari, 157
- Lal, Piyare, 126-128
- Lal, R.B. Shadi, 59- 62
103
- Lantern Slides, 8, 94
- Latafat Hall, 183, 185
- Lead, 75, 80-82
- Leeds University, 77
- Leonard, Professor, 79
- Lewish, T.O., 44, 45
- Lloyd Company, 76
- Local Self-Govern
ment, 139-41
- London Times, The*, 80
- Loyalist Association,
151
- Lucifer, Archangel, 189
- Macaulay, 9
- Macdonald, Ramsay, 174
- Maclagan, Sir Edward, 160
- Madras, 2
- Magna Charta of Indian
Liberties, 43
- Magic Lantern, 97, 99
- Magnetism, 91
- Majumdar, Pratap
Chandra, 148, 155
- Maharashtra, 129, 131
- Mahendra Lal Sircar's
Institute, 12 -15,
90, 97
- Malaviya, Pt. Madan
Mohan, 156, 160,
161, 163, 166, 167
- Manchester, 15
- Mandi, 99
- Manhein, 87-89
- Maynord, Sir John, 160, 16
- Mayo School of Art, 41,
42
- Mazzini, 53, 193
- Mecca, 168
- Meerut, 147
- Mehta, Pherozeshah,
212
- Miani, 91
- Modak, Professor, 134

- Mohammad, 181
 Mookerjee, Asutosh,
 7, 8
 Mughal Court, 152
 Muhammad, Munshi
 Sher, 41, 42
 Mukherji, Sashi
 Bhushan, 3, 44, 45
 Mullick, D.N., 2, 46
 Multan, 1
- Nach Ghar, 148*
 Nagpur, 172, 173,
 201
 Naidu, Sarojini, 154
 Nalwa, Hari Singh, 8
 Namjoshi, Madhavrao,
 128-32
 Naoroji, Dadabhai, 46,
 212
 Narain, Pt. Jagan, 164,
 165
 Nath, Jagan, 33, 34, 38
 Nath, Pandit Ajudhiya,
 155
 National Assembly, 150
 Neckar, 78, 79
- Nehru, Motilal, 78,
 156, 158, 160, 161,
 166, 167, 68
 Nendra, 144
 Norris, Justice, 141,
 142
 North Western Rail
 way, 114, 144
 Norton, Bradley, 155
- Observer, The, 152*
 O'Dwyer, Sir Michael,
 160
 Oman, J.C., 4, 7, 13,
 31, 33, 49-51, 54,
 55, 68, 90, 91, 94,
 97, 108, 121, 143
 Oriental College, 51, 52
 195
 Orissa, 25
- Pal, Bepin Chandra,
 171
 Pandit, Ranjit Singh,
 78, 88, 92
 Pandit, Shankar
 Pandurang, 79, 92, 93,
 148

- Panj Granthi*, 176
Panjab University, 6,
58, 195
Patiala, 99
Patriotic Association,
151
Pedler, Alexander, 5,
7, 9, 10, 26
Persia, 93, 147
Pioneer, The, 24, 25
Poona, 78, 128
Prarthana Samaj, 79
Prasad, Lala Beni, 194
Presidency College,
Calcutta 5-7, 9-13
26, 32, 97
Proclamation of the
Queen, 43
Provincial Educational
Service, 44, 46, 59,
63, 68, 69
Public Service Com-
mission, 44, 68
Punjab, 3, 4, 17, 42,
47, 70, 74, 97,
98, 101
Punjab Education
Department, 1, 32, 33
Punjab Patriot, 151-
53
Punjab Science Insti-
tute, 13, 90 -108
Punjab Science Institute
Workshop, 37, 108-
38
Quetta, 98
Radioactivity, 58, 74, 82,
83
Radium D, 82
Rai, Lala Lajpat, 170,
172
Rai, Navin Chandra,
176, 181, 197, 198
Railway Workshop,
110, 112, 113
Rajkot, 78
Rajputana, 34
Raj, Rai Mul, 116
Rama, 181
Ram, Balak, 146
Ram Beli, 220
Ram, Bhai Kashi, 182,
183, 187
Ram, Bhai Ralla, 187

- Ram, L. Madho, 146
 Ram, R. B. Labdha,
 116
 Ram Pandit Mukund,
 195, 196
 Ramsay, Mr., 174
 Ram Krishna &
 Sons, 151
 Ramsay, Mr., 174
 Ranade, Mahadeo
 Govind, 92, 93, 129-
 31, 148, 149, 155,
 212
 Rang Mahal Mission
 School, 177
 Rawalpindi, 105
 Ray, P. C., 2, 10, 46,
 136, 137
 Reiss, Dr., 84
 Ripon, Lord, 3, 139,
 140
 Rolls Royce, 163
Roy Chand Prem
Chand Scholarship, 3
 Roy Chaudhuri,
 Upendra Kishore,
 10, 11
 Robertson, Eric, 49,
 50, 52, 55
 Rohoras, 175
 Roman Catholic
 Church, 74
 Roy, Raja Rammohan, 12
Ruhani Zindigi, 188
 Russia, 21, 24, 87-89
 Rutherford, Dr., 174

 Sabhur Lake, 34
Sadharanists, 186
 Sahni, B. J., 170, 220
 Sahai, Malik Jawala,
 91
 Sahni, R. B. Ladha
 Ram, 145
 Sahni, Ruchi Ram, 19,
 20, 51, 53, 80, 81, 83
 Salisbury, Lord, 46
 Scherer, Frau, 78, 87
 Scott, Sir Walter, 183
 Serbia, 88
 Setalvad, Chimanlal,
 164, 165
 Shakespeare, 183
 Shikarpur, 156
 Shivaji, 131
 Sikhism, 176

Sikhsha Sabha Hall,
145

Simla, 6, 7, 16-18, 25-
27, 29, 32, 33, 92-95,
131, 146, 147

Simpson, Dr. 13, 14

Sindh Punjab and Delhi
Railway, 144

Singh, Amar, 27-29

Singh, Bhai Chattar,
178, 180

Singh, Bhai Ram, 41,
42

Singh, Chanda, 188

Singh, S. Gurmukh., 190

Singh, Guru Govind, 8

Singh, Raja Nau Nihal,
112

Singh, Raja Rampal, 152

Singh, Ranjit, 8

Singh, Sadhu Seva,
178, 179

Singh, Sardar Dyal,

Sirsa, 93

Sita Ram Ghose Street,
7

Smithells, Professor,
75, 78

Society for the Promotion
of Scientific

Knowledge, 106, 107

Solan, 208

Stein, Dr. Aurel, 51-55

Stephenson, Col., 71, 73

St. Xavier's College, 13,
97

Stewart, Balfour, 51

Subject's Committee,
171, 172

Sulphuric acid, 136,
137

Sukhmani, 175

Tagore, Maharshi
Devendranath, 12

Tagore, Rabindranath,
11

Taj Mahal, 17

Tate's Air Pump, 123

Tawney, C.H., 6

Technische
Hochschule, 80

Temperance Movement,
150

Tennyson, 183

- Theodolites, 122
 Thomson, Sir John, 160
 Tollinton Market, 42
 Tonga Mail Service, 200
 Tribune, 11, 140, 143
 Trieste, 76
 Turkey, 169, 170
Tuti-i-Hind,
 Tyaibji, Abbas, 156, 168

 Udho Missar, 196-98
 United Service Club, 147
 University Convocation Hall, 190
 United Provinces, 151
 Urdu, 152, 176

 Viceroy's Council, 149
 Vitamins, 14
 Vijayaraghavachariar, Salem, 173

 Vivekananda, Swami, 154

 Walter, Sir Gilbert, 213
 Wathen, G.A., 70, 71
 Waziri Khan Mosque, 46
 Weather Report, 19, 20, 24, 26
 Wedderburn, William, 154, 194
 Wimsburst's machine, 126
 Wireless telegraphy, 103
 World War, First, 76, 138, 168
 Wrangler, 3

 X-ray, 101

 Young, Sir Macworth, 103
 Young Men's Religious Association, 183
 Yule, Sir Andrew, 157

About the Editors

Dr. Narender K. Sehgal, Joint Adviser, Department of Science and Technology, and In-charge of the Science Communication and Popularisation programme of the Government of India, obtained MS (1965) and PhD (1969) degrees from the University of Hawaii and the University of Wisconsin, USA respectively. He worked at the Bhabha Atomic Research Centre (BARC), Bombay (1960-63); the university of Wisconsin, Medison, Winconsin, USA (1969-70); Matscience, Madras (1970-71); Somali National University, Mogadishu (1976-78) and the Space Applications Research Centre, Ahmedabad (1978-81). He was an invited contributor to the international science weekly *Nature* (London) on the science-technology-education scene in India (1974-76). Dr. Sehgal was the Founder Editor of the English quarterly *Scientific Opinion* from Jalandhar (1972-76). Besides over 20 research publications including those in experimental and theoretical particle physics and reactor physics in international journals, Dr. Sehgal has to his credit numerous papers and articles on popularisation of science and indigenous technology, mass communication, questions concerning scientific literacy, and the role of science-technology-education in the context of India's development. Since January 1989 he has been editing NCSTC's monthly newsletter *NCSTC Communications* (Hindi & English). As in-Charge of the National Council for Science and Technology Communication (NCSTC) Secretariat, Dr. Sehgal has been instrumental in the conceptualisation; formulation, implementation and co-ordination of science popularisation programmes and promotion and monitoring of related

activities countrywide. As Chairman of the NCSTC-Network, Dr. Sehgal played a key role in organising the first-ever National Children's Science Congress held in New Delhi (December 1993). In recognition of his outstanding work in the field of science popularisation, Dr. Sehgal was awarded the 1991 Kalinga Prize of UNESCO (the only international award in this area) jointly with R. Iftimovici of Romania. He is also the recipient of the 1990 FIE Foundation National Award in Science and Technology for his outstanding contributions in science communication.

Dr. Subodh Mahanti : After obtaining a PhD in organic chemistry, from the Banaras Hindu University, Varanasi, Dr. Mahanti worked in molecular biology. He worked at the National Institute of Science, Technology and Development Studies (NISTADS), New Delhi (1988-1994) on issues in science communication and on the interconnectivities of science, population and development. Recently Dr. Mahanti has joined Vigyan Prasar. Besides papers and articles, Dr. Mahanti has edited several books related to science, technology and development. He has edited daily newsletters during five Indian Science Congress (1990-94); Congresses on Traditional Sciences and Technologies of India (1993) and the National Children's Science Congress (1993).